The best **VPNs** to protect your Mac from attack

Make a video masterpiece easily in **iMovie**

Upgrade your home office with these **ergo mice**

Mac|Life

MAC iPHONE iPAD

NOVEMBER 2021 NO.186

PLUS DEAL WITH ANY macOS DISASTER!

57 WAYS TO FIX YOUR MAC

HOW TO:

Clone your Mac the right way
Ace daily tasks with an iPhone
Manage screen time in macOS
Free up storage on iOS/iPad OS

FUTURE

TIPS FOR EXTRA BATTERY LIFE!

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ANOTHER CLOSE CALL

I really am starting to sound like a stuck record. Not quite as painfully grating on the ears, I might add (although you may disagree), but irksome nonetheless. One whole day before we go to press is the day that Apple decides to hold its Apple Event for 2021. Not our fault, not Apple's fault; it's just the way the cookie crumbles. So in case you're wondering why we're not covering the new iPhone 13, the latest Apple Watch or, possibly maybe, some new Apple AirPods (or something else even more amazing), now you know. Fear not, for we shall be looking at all the new products announced in the next issue of *Mac|Life*, in considerable depth. We'll also have a complete guide to the all-new iOS 15 (still not out yet, at the time of press) and we'll be showing you how to get your Mac ready for macOS 12 Monterey (also still not out...).

Anyhow, on to this issue, and you might be forgiven for thinking after all my excuses there's not much to look forward to for the now. Not so, though. First of all, on page 14 we're going to show you how to solve the most common problems that you might encounter with your Mac, from minor misdemeanors like apps misbehaving, to major felonies like losing precious files, and even how to recover your Mac if all goes wrong. It's a no brainer if you're having issues with your machine, so go read it right now.

Provided all is well with your Mac, then, our second feature this issue (p30) focuses on helping to get more from said device, provided it's a MacBook of course — we're going to show you how to eke the most out of your machine's battery life with some top battery-saving tips. Oh, and we'll be covering the iPhone, iPad and Apple Watch too, to get you more time with them on the road.

Finally, and it's a bit of a fave of mine, but we've got a roundup of the best VPN apps for your Mac on page 58. If you want to improve your security and privacy at home or on the move, you really need one of these in your life, and we'll show you which of these is worth your time and money. Enjoy!

NICK ODANTZIS, Editor
Twitter: @maclife

>>>THE TEAM

Matt Lochrie
Art Editor
Has been drawing Tonics and Tinctures for your viewing pleasure on App Roundup this issue.

Olivia Weaver
Production Editor
Olivia enjoyed Bob's story about his 'First Apple Watch' (p7). Heartwarming!

Charlotte Henry
Contributor
Charlotte focuses on the Apple IIGS this month, but what retro tech would you like her to cover in future?

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LETTER OF THE MONTH

I'm writing in response to your latest editorial and magazine article, iPad Vs. Mac. I'm a long-time Mac user (since the 80s), and have used a series of MacBook Pros for my film and video production work since their inception. However, I've been in between computers ever since Apple announced the transition to Apple silicon, and because I haven't had the need for video editing capability during the course of the last year due to the pandemic.

While waiting for the next incarnation of the MacBook Pro, I've been using an iPad Pro 12.9-inch (2nd generation) for all of my work, which currently involves writing in Pages and the Final Draft Mobile app, creating spreadsheets in Numbers, drawing storyboards in Procreate with Apple Pencil, and navigating videos through the Vimeo and YouTube websites. I've been somewhat shocked to find out just how much I've been able to accomplish with an iPad Pro alone.

I recently splurged on a new iPad Pro 12.9" (5th generation) with M1 processor in the hope that I'd be able to do at least a bit of video editing on it while waiting for Apple to release a new MBP. I was very disappointed to find out that the most popular video codec, MP4, is not a supported format. I've tried calling Apple about this, but the only response I could get from them is that I would need to convert MP4 files to a supported format. However, it's just not possible to convert a file that you cannot download in the first place.

It's becoming increasingly more difficult to get answers to specific technical support questions from Apple Support or even AppleCare, which is incredibly frustrating for those of us who rely on Apple for straight answers about this sort of thing for work-related issues. For instance, I had to make five calls to Apple in order to get an unsatisfactory response.

Although I read your editorial and Mac Life article via Apple News+, I prefer print subscriptions, so I'm now considering a subscription to your magazine thanks to your in-depth articles and reviews.
DOMINIC J. DEJOSEPH

As you mentioned, it's possible to convert MP4 files to be used on iPad OS, but for some reason you're unable to download them from Google Drive in the first place. We've checked and we had no problem sourcing an MP4 on our Google Drive, opening it in Files to save it (both locally and in iCloud). We could even play back the MP4 file without issue, although that's probably because it's been compressed correctly (in H.264 or MPEG-4).

Watch this space

I call this "The First Apple Watch." My wife bought me a System 7.5 CD in 1994, which included this watch. I've worn it proudly for 26 plus years. Sadly, it is slowing down – I have to bid an old friend "Goodbye".
BOB SCUTELLARO
CARY, NORTH CAROLINA

Fantastic story, thanks for sharing Bob! Surely, it'll become a collector's item?

The bigger picture

Thank you for the article on iPhone photography in your August issue. I was thrilled that I could get a 16:9 aspect ratio on my iPhone SE, but when I tried it, it simply letterboxed the 4:3 view I already had.
KEITH E GATLING

We should have clarified that the 16:9 image doesn't capture a wider view than the standard 4:3, but instead it crops the image to make it usable on modern screens.

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Mac Life

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START

THE LATEST NEWS FROM THE WORLD OF APPLE

Epic Games antitrust trial verdict

Apple must loosen its grip on payments, but App Store passes antitrust test

BY ALEX SUMMERSBY

US DISTRICT COURT Judge Yvonne Gonzalez Rogers has ordered Apple to allow apps to offer alternative payment systems in addition to Apple's own In-App Purchase (IAP) mechanism, and to permit app makers to communicate directly with customers using contact information voluntarily given through in-app account registration.

The ruling concludes the lawsuit brought by Epic Games, maker of Fortnite, against Apple, although Epic has indicated that it intends to appeal. That's because the ruling is not a "huge blow for the App Store," as some commentators painted it. Apple is calling it a "resounding victory" because, apart from these "anti-steering" practices, Apple won on every other count in the case.

In August 2020, Epic added a feature that allowed iOS and Android users to purchase in-game Fortnite items and V-bucks directly instead of using IAPs (of which Apple takes a 30% cut), and offered a big discount to entice customers to do so. Apple dropped Fortnite from the App Store and froze Epic's developer account, saying the feature "was not reviewed or approved by Apple" and was added "with the express intent of violating the App Store guidelines regarding in-app payments."

Judge Gonzalez Rogers ruled that Epic had failed to prove Apple has an illegal monopoly. "While the Court finds that Apple enjoys considerable market share of over 55% and extraordinarily high profit margins,

The popular game Fortnite is still absent from the App Store.

Image rights: Epic Games.

these factors alone do not show antitrust conduct. Success is not illegal," she said. She ordered that Epic must pay Apple 30% of the $12.2m revenue it collected through Epic Direct Payment plus 30% of any iOS-related revenue collected between November 1 and the date of the judgment, plus interest.

Apple General Counsel Kate Adams said: "The Court correctly determined that 'developers like Epic Games have benefited from Apple's development and cultivation of the iOS ecosystem, including its devices and underlying software.' Underlying the App Store business is a framework, including App Review, curation and protection of the security and privacy of our users. The Court has ruled that this framework is lawful and Apple was justified in terminating Epic's status as a developer on the App Store."

A week before the ruling, Apple already announced an agreement with US developers to settle a class action lawsuit on much the same terms. Developers will be permitted to "share purchase options with users outside of their iOS app" and will not pay Apple a commission on any purchases made outside of apps or the App Store. Users must consent to the communication and have the right to opt out. In addition, small developers with revenue under $1m a year will pay a reduced commission of 15% for at least the next three years, and also be eligible for aid from a new $100m Small Developer Assistance Fund Apple is setting up.

On top of this, Apple announced a News Partner Program for news organizations that provide content in Apple News using the Apple News Format. These will also benefit from a 15% commission rate on qualifying subscriptions to their news app.

Earlier in September, Apple made an agreement with the Japan Fair Trade Commission, allowing makers of "reader" apps to include an in-app link to their website for users to set up or manage an account. Reader apps do not offer purchases but provide access to previously-purchased content or content subscriptions. The agreement will apply globally to all reader apps.

In late August, in South Korea, a new Telecommunications Business Act required Apple and Google to allow alternative payment methods for in-app purchases.

So the Epic Games ruling does not impose any changes that Apple is not already making, and it still won't be possible to side-load games or other apps, bypassing the App Store. Apple's revenue mix might alter, but its "curation" and control continue.

News in brief

A bite of the Apple

› PROTECTIONS POSTPONED

Apple is postponing its measures against Child Sexual Abuse Material (CSAM) content, which were strongly criticized by privacy advocates. "Based on feedback from customers, advocacy groups, researchers and others," Apple said, "we have decided to take additional time over the coming months to collect input and make improvements before releasing these critically important child safety features." No time scale or further details were given, but it's clear that Apple hopes to press ahead in time. Apple VP Craig Federighi told the *Wall Street Journal* the proposals had been "widely misunderstood."

› WHATSAPP SECURITY UPDATE

Messaging app WhatsApp is being updated to enable encrypted backups in iCloud or Google Drive, adding an extra layer of security. "WhatsApp is the first global messaging service at this scale to offer end-to-end encrypted messaging and backups," Facebook CEO Mark Zuckerberg said, "and getting there was a really hard technical challenge that required an entirely new framework for key storage and cloud storage across operating systems." While iMessage also offers end-to-end encryption of messages, your encryption key is by default stored within your device backup on iCloud, meaning Apple could decrypt messages if required by law enforcement (or if you lose your password and request it). WhatsApp now closes that loophole – so don't forget your password!

Image rights: Epic Games.

> THE SHIFT

MATT BOLTON IS wondering what's supposed to fill the AirPods and HomePod-shaped hole in Apple's current feature list...

TRITE AS IT is to say it at this point, Apple's strength is its ability to mix hardware and software, and offer features that either don't work as well (or at all) when they're tried by other companies that don't have that level of integration. Sometimes, you look at a product differently after a big software update — or maybe even a software update to a totally different product — as suddenly new options are revealed.

But this year, I found myself experiencing a new sensation: watching Apple announce features, and thinking that the product they seem clearly designed for doesn't actually exist. Yet.

First was the push for spatial audio in more areas during WWDC. It's coming to Apple TV! It's already in Apple Music Dolby Atmos tracks! But all stereo tracks will be upgraded with it too! It was an awful lot of fanfare that currently works with exactly two pairs of headphones in the world, and both are rather niche, given that the AirPods Pro are the cheaper option and have an RRP of $249. As the next version of regular AirPods are kind of an open secret at this point, and are said to have spatial audio support, the whole rigamarole would have had a lot more effect if those were actually available to bring this feature at an affordable price. Instead, it just felt awkward, like there was one band member who was too hungover to turn up to the live show.

Word is that AirPods 3 will basically borrow the Pro's design, but will lack noise cancellation.

It was even more odd with the second rather large Apple product hole, which actually came during the announcement of the new Apple TV 4K. The Apple TV has a very clever feature, which is to take audio from your TV, and send it over AirPlay. That means you can turn your HomePods into home cinema speakers, no matter what video source you're using! And with Dolby Atmos advanced audio, no less. Brilliant! With the small wrinkle that Apple had discontinued the HomePod (its only Dolby Atmos speaker product) a couple of weeks before. And HomePod mini isn't Atmos-capable, or even compatible with the home theater audio feature.

As of the time of writing, there's an entire feature of Apple TV that you can't buy any hardware to access.

Who is this feature for? Existing HomePod owners? That's fine, as long as you have a pair you want to use together. And now that those 150 people are happy, who else?

Just like it felt as though there should have been new cheaper AirPods for spatial audio, it seems like there was supposed to be a HomePod 2, or an Apple soundbar that this feature pairs with.

Of course, we are living in strange times, but hopefully something will fill in the blanks for us soon enough.

>>> Matt is the AV and smart home editor of Future's flagship technology website T3 and has been charting changes at Apple since his student days. He's skeptical of tech industry hyperbole, but still gets warm and fuzzy on hearing "one more thing."

Image rights: Apple.

SPOTLIGHT

UP CLOSE AND PERSONAL WITH...

Mac Pro (2006)

Apple's Intel Xeon-powered super-Macs were available with one or two CPUs (with options giving 2-12 cores), and had room for four internal SATA-300 hard drives.

CRAVE

THE GEAR WE'RE LUSTING AFTER

1 Bang & Olufsen Beosound Level

From $1,499 **From** bang-olufsen.com

>>> Aimed squarely at B&O's audience of tech-savvy music lovers with an eye for design, the Beosound Level is a portable smart speaker that can be positioned on a surface upright, laid flat, or wall mounted. If you're looking for a stylishly understated speaker that isn't understated on audio quality, it's an excellent choice. It takes up only a sliver of space on a shelf, but provides a bigger, richer and more enjoyable sound than your average smart speaker.

Uniquely, this elite Wi-Fi speaker is made to be upgradeable. The wireless module, the sound processing and the battery can all be replaced with upgraded versions later – it's intentionally a modular design. The idea is to try to give the Level the same kind of longevity that people used to get from hi-fi.

2 TCL Roku TV 2021 6-Series

From $2,199.99 **From** tcl.com

>>> 8K has thus far been the exclusive playground of the big players, but LG, Sony, Samsung et al will have to learn to share: TCL is making its 8K debut this year with a screen which undercuts its rivals on price, and brings super-resolution screens for the rest of us.

Well, mostly. The 6-Series 8K is still not, at this point, particularly cheap, slashing a few hundred bucks from its rivals but still remaining at over $2,000; it is also unlikely to have the same picture processing power as TCL's more mature rivals, making this a questionable purchase. But it's a start, a statement, and an important marker. When TCL gets 8K, 8K ceases to be some unattainable dream reserved only for affluent buyers. It moves far closer to the norm, and we fully expect 2022 to see far more affordable 8K panels. Are you planning on getting on the 8K train yet?

Image rights from top: Bang & Olufsen, TCL.

3 Sony ZV-E10

$698 (body only)

From sony.com

>>> Here we have the follow-up to last year's ZV-1, and the big change is that, unlike its fixed-lens predecessor, this is a mirrorless camera compatible with the company's E-mount lenses. It's marginally heavier, but a larger APS-C sensor from the a6100 gives the ZV-E10 far superior ISO capabilities and an expanded autofocus that covers 84% of the frame.

Oddly, though, there's no significant difference in video recording capabilities. This still tops out at 4K 30p, which means the ZV-1 will still have its place – if you're looking for more options in your filming, this is perfect, but there's still that point-and-shoot alternative if you prefer.

4 Nothing Ear (1)

$99 **From** us.nothing.tech

>>> The Nothing Ear (1) buds have a dangling stem with an AirPods-Pro-esque design but the very first thing you'll notice is the buds are transparent. Well, mostly transparent. You can see everything inside the stem, then the actual bud itself is solid white.

Packed inside the tiny buds are .46in drivers, which is pretty big for something so small. They definitely sound like more premium buds than they are. You get three Active Noise Canceling modes: Maximum, Light, and Transparent.

With ANC switched on, the Nothing Ear (1) will last up to four hours from a single charge and the charging case provides you with an extra 24 hours of playback, or 34 hours with ANC off.

5 Sony LSPX-S3 Glass Sound Speaker

$349.99 **From** electronics.sony.com

>>> Atmosphere and audio combine to make the LSPX-S3 an interesting device, albeit one that makes us a little nervous. The organic glass tube on top isn't only there to give its candle-aping LED something to reflect from, it is itself a tweeter, physically tapped by three actuators at its base (using a tech Sony calls Advanced Vertical Drive Technology) in order to resonate high frequencies. It's joined by a standard 1.8in mid-range speaker in the center and a passive radiator for bass, giving the LSPX-S3 some serious range.

And if you're happy carrying a glass tube around with you, it packs eight hours' battery so you can give it some physical range, too.

Image rights from top: Sony, Nothing Technology Limited, Sony.

57 WAYS TO FIX YOUR MAC

Fix your Mac fast with our in-depth guide

WRITTEN BY CARRIE MARSHALL

YOU KNOW THE LINE: when you have Apple hardware, it just works. But while that's true most of the time, sometimes it doesn't just work. Sometimes your Wi-Fi goes weird, your system slows, or your everyday app crashes. What then?

If your Mac's misbehaving, don't reach for your iPhone to book that Genius appointment just yet. The majority of Mac problems are straightforward to fix, and in most cases they can be sorted in much less time than it'd take to travel to the nearest Apple Store or get a convenient appointment. It's great that Apple Geniuses and Apple Support are there for us, of course, but it's also great when we can solve the problems ourselves without having to go anywhere.

Troubleshooting can be intimidating, we know, especially if you're not particularly technical. But you don't need to be a techie to fix most Mac issues. Whether it's unstable Wi-Fi or unresponsive apps, a file you didn't mean to delete, or an iCloud service that simply isn't syncing, you'll discover the tricks, tips, and tools you can use to diagnose and solve all kinds of Apple problems so that once again, you can look at your Mac and say "it just works". Let's uncover your inner genius.

Getting started

What to do when you're struggling to do anything at all

> System folder

Don't start to panic: chances are it's a minor and easily fixed issue that you can sort out yourself. Press and hold the power button for 10 seconds to ensure your Mac is turned off and then restart it while holding down Cmd+Opt+p+r. This resets the non-volatile RAM (NVRAM) that your Mac uses to store basic settings. Keep the keys pressed until you've heard the startup chime twice. No luck? Restart again but this time hold down Cmd+r. This will launch the Recovery console from which you can run Disk Utility's First Aid feature.

> My Mac crashes on startup. Why?

It's likely to be a software problem. If your Mac contains Apple's M1 chip, turn on your Mac and keep pressing the power button until Startup Options appears; select your startup disk, press and hold Shift and click "Continue In Safe Mode". On an Intel Mac, just restart or start your Mac with the Shift key held down until you see the login window. If the problem persists in Safe Mode, reinstall macOS entirely; if it doesn't, unplug external hardware and remove login items from System Preferences > Users & Groups.

> My Mac keeps freezing. What can I do?

Is it your whole Mac or just Finder? If it's the latter you can restart Finder (which includes the menu bar and your desktop) by clicking the Apple menu > Force Quit > Finder > Relaunch. If it's your whole Mac, restart without any external hardware and see if it solves the problem: if it does, re-connect things until the problem comes back. Whatever you added most recently is likely to be the culprit, so check the manufacturer's website for updated driver software.

> My Mac takes forever to log me in. Why?

If it takes ages to log you in, have a look under your user name in System Preferences > Users & Groups. This enables you to see your login items, which are the apps and app helpers that load when you log into your Mac – things such as cloud storage services or the little apps that live in your menu bar. The more things your Mac has to load, the longer login will take. To remove a login item, select it and then click on the "–" sign. This doesn't uninstall it; it just stops it loading at login.

> Why can't I log in?

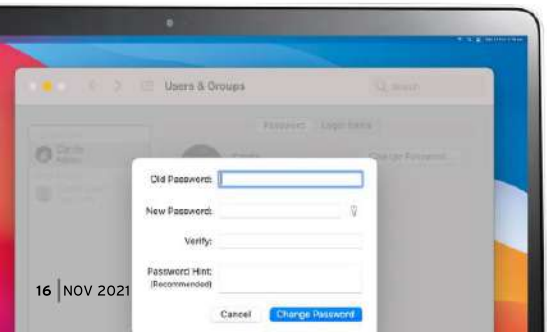
If your login password isn't working, restart your Mac. When you see your user account, click on the "?" in the password field and then click "Reset It Using Your Apple ID". You should now be able to reset your password. To change other users' passwords, go into System Preferences > Users & Groups.

> Why is this app misbehaving?

We encounter this most frequently after software updates, whether those are for an individual app or the entire macOS: an app that worked just fine in version 1.3 is weird in 1.4. The solution to both of these is exactly the same: wait for the app maker to update their app.

> Why won't this app run?

Some apps won't run on Big Sur at all because they're 32-bit: Apple stopped supporting 32-bit apps after macOS Mojave. However, other apps are blocked because your Mac blocks non-App Store apps for security reasons. You can change that setting in System Preferences > Security & Privacy > General.



> Why does this app crash when running?

Apps can crash for all kinds of reasons: with so many possible configurations of macOS, external hardware, and apps it's impossible to test every eventuality. However, apps that crash on launch may have faulty disk permissions: fix that in Disk Utility > First Aid. No luck? Uninstall and re-install it.

Image rights: Apple.

› When to use Force Quit

Normally when an app becomes sluggish we quit it from within the app and then restart it. But sometimes an app just stops working. If you can't quit in the usual way, click the Apple menu › Force Quit to see a list of the apps that are running. If an app says "not responding", select it, and click Force Quit to shut it down.

› Why does my Mac keep beach balling?

The spinning beach ball tells you that your Mac is struggling to do what your software wants, so it's something you might see during intensive tasks. Use Activity Monitor (in Applications › Utilities) to see what's putting your Mac under the most CPU load or maxing out your Mac's memory.

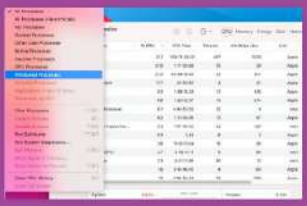
› How do I sync my iPad/ iPhone in Catalina or later?

With iTunes gone – and with it the traditional syncing route – syncing your devices now happens in Finder: just connect your iPad or iPhone to your Mac via USB and it should appear in the sidebar of the Finder window. If it's your first go, you'll need to tell your Mac to trust your device. Once that's all done, simply click on the device in the Finder sidebar to see its sync options.

How to Use Activity Monitor

1 Open the app

Activity Monitor lets you see what's running on your Mac. To launch it, press Cmd+[spacebar], type "activity" and then press Enter. Or you can launch it by clicking on Applications › Utilities.



2 See what's running

If you go to View › Windowed Processes you can simplify what's on screen: instead of seeing every individual process, which can be a bit intimidating, this option shows only the apps that are currently running.

3 Sort it out

Click on a column header to sort, so if you want to list apps alphabetically click "Process Name". You can view different resources by clicking the right button: CPU, Memory, Energy, Disk, and Network usage.

4 Who's the hog?

Look at CPU usage. Here, we can see that Logic Pro is using 27.3% of our CPU while it exports a project. If an apparently idle app is using lots of power, quit and restart it: if it's Safari, close tabs.

5 See everything

If you're feeling more confident, viewing All Processes enables you to see the individual processes each app is using – and in the case of Safari, each individual tab. That's useful for spotting overly demanding websites.

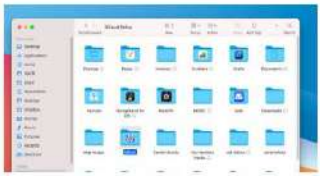
6 Check the kernel

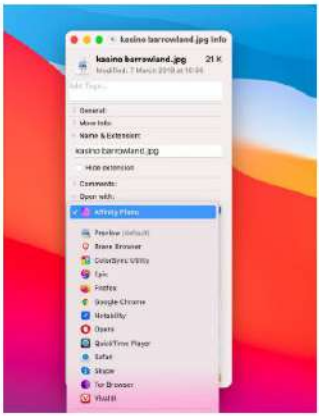
One common resource hog is the kernel_task process, which sometimes maxes out your CPU. A reboot is a quick fix but if the problem recurs you'll need to reset your Mac's System Management Controller.

Image rights: Apple.

Files and backup

Find files and fix Finder





> Where are my files?

Your files are stored in Macintosh HD > Users > [Your name] in various folders: Movies, Music, Pictures, and so on. If you use iCloud Drive, your files and folders are in the Mobile Documents folder in your user account's library; to locate it in Finder, follow the steps in "Where's my Library folder?"

> Where's my Library folder?

It's in Macintosh HD > Users > [Your name] > Library, although you can't see it: Apple rightly assumes that most users don't need to go there very often, if at all. But it's a couple of clicks from the Finder: in the menu bar click Go > Go To Folder, hold Shift and you'll see Library appear.

> Why can't I empty the Bin?

This is usually because something in the Bin is still being used by an app (or because your Mac thinks it is, which can sometimes happen after an app crashes). Quit the app if you can and try again; if that doesn't work, you'll need to restart your Mac. Still no joy? Boot into Safe Mode (p20) and try once more.

> Why won't my file open in Catalina or Mojave?

This is most likely to happen with older video files. Users of iMovie and Final Cut Pro were warned from early 2019 if they were using formats due to be binned when Catalina was released. You can use apps such as VLC or Handbrake to open and convert old files.

> Why won't files open in the app I want?

Certain types of files are associated with certain apps, so for example when we double-click a JPEG or PDF, the file always opens in Preview. You can change this by holding Ctrl, clicking "Get Info", and selecting a different app from the menu in the Open With section.

How to Troubleshoot external drives

1 Check your screens

We've found that when we wake our Mac from sleep, macOS sometimes moves all our drives to the external display or doesn't re-initialize the USB ports. Unplugging and reconnecting the USB cable(s) will fix the latter.

2 Look at locations

The Finder sidebar includes a section headed Locations, which you may have to scroll down to see: here you'll see any connected storage devices and your main Mac drive. If your drive is visible, you can click to see its contents.

3 Check your desktop

If your drive is appearing in Locations but not on your desktop, go into Finder's Preferences and look under the General tab. If the checkbox for a particular kind of drive isn't checked, it won't appear on your desktop.

Image rights: Apple.

› Why can't Spotlight or Siri find my file?

Spotlight and Siri don't necessarily search for every kind of file: if you take a look in System Preferences › Spotlight › Search Results you'll see a big list of categories. If a category isn't checked, it won't be included in search results. You can also exclude specific folders in the Privacy tab.

› Why aren't my files in Time Machine?

Assuming your backup drive has enough space for full backups, are the missing files in a folder that you've excluded from your Time Machine backups? Follow the steps on the right to check; if a folder shouldn't be in the list you can remove it by selecting the folder and then clicking the "–" button.

› What do I do if Time Machine is full?

If Time Machine has run out of space, you don't necessarily need to invest in a bigger drive. You can reduce Time Machine's storage requirements in System Preferences › Time Machine › Options and exclude non-essential folders by adding them to the "Exclude these items from backups" list.

› Where's my file gone? How do I get it back?

Check the Bin, search for its file name in Spotlight or use Recents in the Finder sidebar (or the Recents bit of the app's File menu). If you've accidentally overwritten it you can use File › Revert To or Time Machine to go back in time to find and recover a previous save.

› Why does Time Machine keep timing out?

Antivirus software is a known offender here: if you can, exclude your backup disc from its scanning. Time Machine also goes slow when your system is under heavy load or is running out of battery, and the "preparing" stage can take longer if the previous backup was interrupted.

› Why isn't my external drive showing up in Finder?

If it's a Mac-formatted drive that previously worked you're not alone: this happens to us frequently, especially when we wake our laptops from sleep. The tutorial below will help you diagnose your missing drive.

4 Scan the sidebar

The same applies to the Finder sidebar: it's possible to prevent certain types of devices or locations from appearing in the sidebar. You can check that in Preferences › Sidebar and enable or disable any items you wish.

5 Use Disk Utility

Applications › Utilities › Disk Utility can fix some drive problems: if the drive is showing in Disk Utility, you can select it in the sidebar, and then click on First Aid to perform a series of checks. If it finds errors it will then try to fix them.

6 Check the format

A new drive might have the wrong file format: some PC formats will not work on a Mac. If the drive is formatted with one of them you can reformat it into something Mac-friendly, but you'll lose its data.

Image rights: Apple.

More serious problems

When a restart isn't the answer

> When should I reset the NVRAM or SMC?

NVRAM is where your Mac stores settings such as your startup disk and connected devices; the System Management Controller handles the battery, heat, the power button, and the light sensor. Resetting the former can solve startup issues; resetting the latter may tame unruly processes such as kernel_task. To reset NVRAM, power on while pressing Opt+Cmd+p+r. Hold the keys until the second startup chime. Check out bit.ly/apple-resetsmc for Apple's guide.

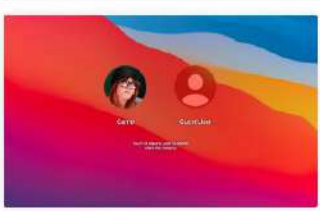
> How do I get my lost files back?

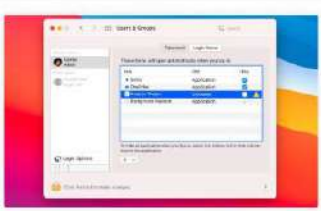
Open the folder that used to contain the file(s) and then launch Time Machine. You can now use the arrow keys to move back in time. Select a file or folder and click Restore to bring it back. For a full restore, start in Recovery mode, reinstall macOS and then you can restore from your Time Machine backup.

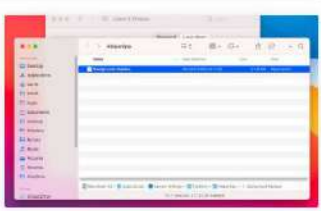
WHY DO I GET A FLASHING QUESTION MARK AT STARTUP?

The ? folder means your Mac can't use your startup disk. If it's only there for a moment, reset the NVRAM. If it's persistent, power off your Mac and go into macOS Recovery. Use Disk Utility to scan and fix any disk errors. Still nothing? You'll need to reinstall macOS.

How to Use Safe Mode







1 Boot your Mac

Turn off your Mac, wait 10 seconds, then turn on, holding down Shift (Intel) or the power button (M1). On an M1, select your startup disk, hold Shift and click "Continue In Safe Mode". Your Mac will boot with non-essential items disabled.

2 Look at logins

A common cause of problems is unwanted login items, which load when your Mac boots. Go to System Preferences > Users & Groups > [Your name] > Login Items and remove any you don't want. This disables but doesn't delete them.

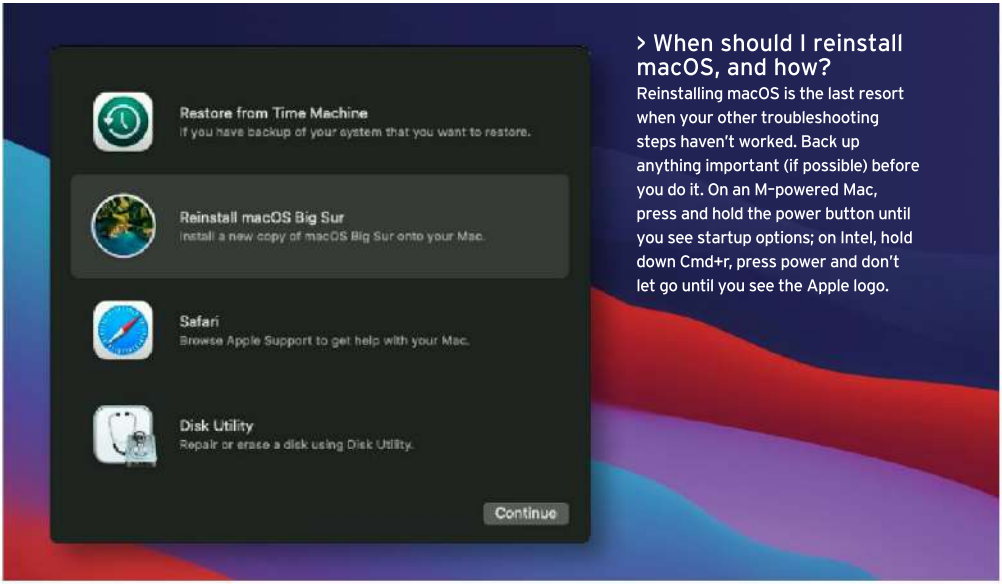
3 Find the folder

If you're not sure what something is, right-click and choose 'Show In Finder'. This enables you to see where the item lives on your Mac. You might need to enable the status bar in Finder > View to see the breadcrumb trail.

Image rights: Apple.

macOS Recovery

Bringing your Mac back


Restore from Time Machine
If you have backup of your system that you want to restore.
Reinstall macOS Big Sur
Install a new copy of macOS Big Sur onto your Mac.
Safari
Browse Apple Support to get help with your Mac.
Disk Utility
Repair or erase a disk using Disk Utility.
Continue

› When should I reinstall macOS, and how?

Reinstalling macOS is the last resort when your other troubleshooting steps haven't worked. Back up anything important (if possible) before you do it. On an M-powered Mac, press and hold the power button until you see startup options; on Intel, hold down Cmd+r, press power and don't let go until you see the Apple logo.

› What does this error code mean?

Apple's error messages are usually good at telling you what's wrong, but some of them are just mysterious numbers that don't really tell you anything, especially with iPhone syncing and software updates. You can look up error codes and find out how to fix them at support.apple.com/en-gb/HT203174.

› When should I start in Safe Mode, and how?

Safe Mode can help you identify the cause of startup, app or performance problems by running your Mac with all non-essential services switched off. On an Intel Mac, press and hold Shift on startup; on an M-series Mac, press and hold the power button and hold Shift once you've selected your startup disk.

› How do I use macOS Recovery?

Recovery can repair disk problems or reinstall macOS. On an M-series Mac, go to the Apple menu › Shut Down and press and hold the power button until you see "Loading startup options". Click Options › Continue. On an Intel Mac, click the Apple menu › Restart and press and hold Cmd+R until you see the startup screen.

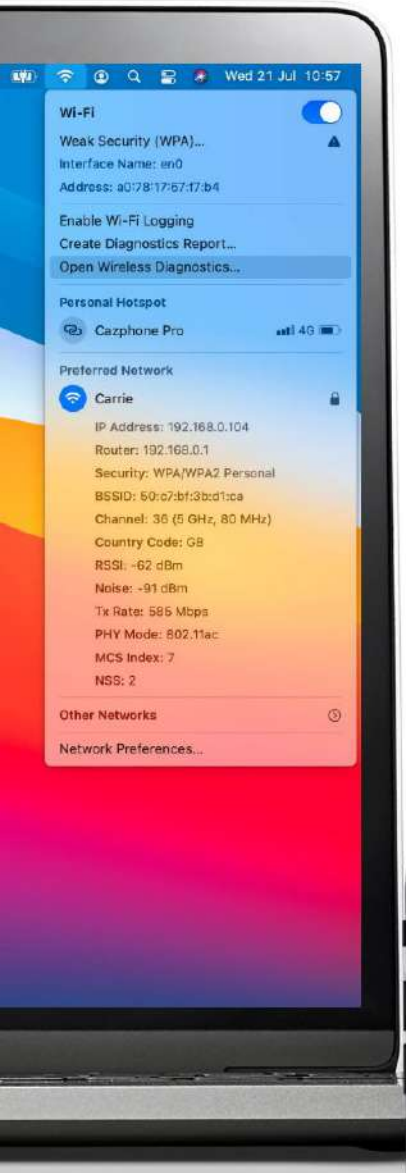
› What do I do if I suspect a hardware failure?

There's an app for that. Apple Diagnostics can test your Mac's internal components. On an M-series Mac, press and hold the power button until you see the startup options; click Options and then Cmd+D. On an Intel Mac, start your Mac with D held down. Release it when you see the progress bar.

Image rights: Apple.

Networking issues

Troublesome Wi-Fi and shaky Safari



> How do I find shared files?

In Finder, click Network in the sidebar (under Locations) and then double-click on the computer you want to connect to. Once you've connected, you should now see the files and folders that have been shared with you. You can add shared folders to the Finder sidebar for quick access in future.

> Why am I getting an invalid security certificate warning?

Certificates are used by secure websites to prove they are who they say they are, but sometimes the certificates aren't renewed on time or the server settings have changed since your last visit. Sometimes a Mac set to the wrong date or time can generate an error, which creates an invalid security certificate warning.

> Do I need antivirus?

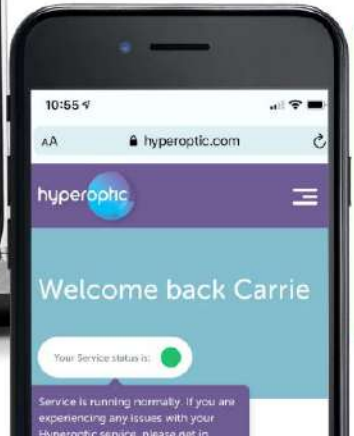
The short answer is no, but the longer answer is maybe. If you take security seriously, don't download apps from dark corners of the web, and never click on a suspicious email then Macs are generally more secure than PCs, but if you share your Mac with others then it might be a wise investment.

> Why do I keep losing my Wi-Fi connection?

Step one is to turn off your router, wait 30 seconds and then restart it. If it feels very warm or your signal strength isn't great, changing its location may prevent overheating or improve the network quality: Wi-Fi doesn't cope well with metal obstructions such as radiators or filing cabinets.

> How do I share my network?

Share your internet connection with other devices by enabling Internet Sharing in System Preferences > Sharing. For example, you might choose to share from your Ethernet connection to other devices via Wi-Fi, turning your Mac into a wireless hotspot, or share your Wi-Fi with other Macs via Ethernet.



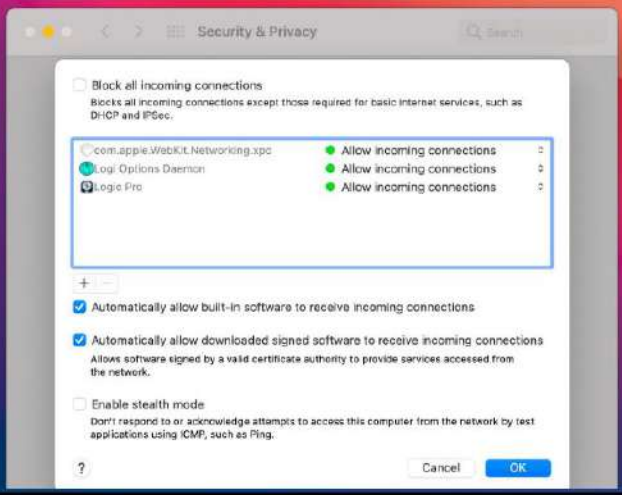
WHY CAN'T I GET ONLINE?

Most of our woes are because we're out of Wi-Fi range, because the login has changed, because we need to reboot our router, or because our Wi-Fi is fine but our broadband is down. If your phone's within reach, use it to check your broadband provider's network status page for any updates, to make sure there's an internet to connect to.

Image rights: Apple.

› What does too many redirects mean?

This is a safety feature in Safari that's activated when a web page sends you to another page, which sends you back and gets stuck in a loop. Unfortunately, it can also be triggered by some Google services, which won't work unless you disable cross-site tracking protection in Safari's preferences.


Security & Privacy
Block all incoming connections
Blocks all incoming connections except those required for basic Internet services, such as DHCP and IPSec.
com.apple.WebKit.Networking.xpc
Allow incoming connections
Logi Options Daemon
Allow incoming connections
Logic Pro
Allow incoming connections
Automatically allow built-in software to receive incoming connections
Automatically allow downloaded signed software to receive incoming connections
Allows software signed by a valid certificate authority to provide services accessed from the network.
Enable stealth mode
Don't respond to or acknowledge attempts to access this computer from the network by test applications using ICMP, such as Ping.
Cancel
OK

› Why can't my app connect to the internet?

It could be your system firewall. Click the Apple menu › System Preferences › Security & Privacy › Firewall to see if it's switched on and, if it is, see what traffic it's limiting. For example there's a toggle that allows built-in apps (that is, Apple ones) to work but that blocks third-party ones.

› When should I use a VPN?

If you just want to protect your web browsing and you're an iCloud subscriber, Safari will include a VPN-style feature called Private Relay in macOS Monterey. But there are lots of third-party Virtual Private Network (VPN) providers. A VPN disguises your location and makes it hard to track or intercept your data, and it can also bypass geographical blocking. That means it's good for protecting online privacy or for accessing content, such as YouTube video, that isn't available in your country.

Image rights: Apple.

All about iCloud

How to handle your files stored in the cloud

> Why isn't iCloud syncing?

Make sure that you check out apple.com/support/systemstatus to see if any iCloud services have problems. Nothing? Ensure you're logged in with the correct ID on your devices and that the specific services are turned on in their preferences. You can do this on your Mac by going to System Preferences > Apple ID.

> Why have I run out of space on iCloud?

Unless you're a student, your free iCloud space is a miserly 5GB – but even paid accounts can run out of room, especially if you're backing up mobile devices. You can manage which apps use iCloud storage in System Preferences > Apple ID and delete unwanted data by clicking Manage.

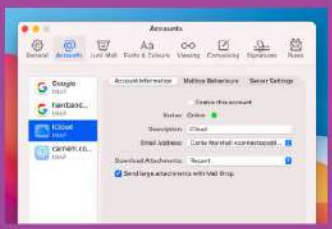
WHY HAVE MY PHOTOS STOPPED SYNCING?

If you run out of storage space, new photos and videos won't upload until you free some space or buy more storage. If you have space, make sure iCloud Photos is enabled in Photos > Preferences > iCloud and toggle it off and back on on your iPhone or iPad.

Image rights: Apple.

› I can't access my iCloud emails. Why?

As with Photos, it could be that you've maxed out your storage. If you haven't, use the iCloud system status page to check iCloud Mail is working OK. If it is, go to Mail › Preferences › Accounts, select your iCloud account and make sure it's active and online.



› How do I recover something I've accidentally deleted?

Don't panic! iCloud keeps files for 30 days after deletion, and you can get them back by logging into iCloud.com, clicking on Account Settings and scrolling down to Restore Files. For photos, there's a Recently Deleted folder in the sidebar.

Image rights: Apple.

Other problems

Battery safety and scary failures

> My Mac just won't switch on!

A Mac that appears to be turned off might not be: the display may be off while the Mac itself is okay. Press and hold the power button on your Mac for 10 seconds to turn the entire Mac off, and then press and release the power button like you normally would. If your Mac partially starts up and displays a no-entry symbol, that means your macOS is corrupt or incompatible. You can fix this in macOS Recovery. If that doesn't work or your Mac didn't get that far, it's time to give Apple Support a call.

> There's a spinning globe on my startup screen!

This happens when macOS Recovery has failed, so your Mac is trying to do it over the internet instead. If this Recovery doesn't work then you'll see a globe with an exclamation mark. That's usually because of a connection problem, so you should restart and then select the correct Wi-Fi network when prompted or connect to Ethernet.

> My Mac wants me to enter a PIN code!

This is a security feature: it's what happens when you remotely lock a Mac via the Find My app. If you were the person who locked it you should have been given the appropriate code at the time; if you've lost the PIN or never had it, then go to iCloud.com/find and sign in to unlock your Mac. Make sure you change your password afterwards.

HOW DO I STOP MY BATTERY DYING IN STORAGE?

If your Mac laptop is going to be left unused for a long period – months rather than days or weeks – you should charge it to 50% before you put it into a dry place away from temperature extremes. This is because if your battery is flat it could go into what's called a "deep discharge state" that won't hold a charge any more; a fully charged battery may lose some capacity. Apple recommends that if your Mac will be in storage for longer than six months, you should half-charge it every six months.

Image rights: Apple.

Professional repair options

What to do when all else fails

› How much is a new laptop battery?

If your battery isn't covered by warranty or AppleCare+, Apple will replace it. The prices start at $129 for a 13-inch or 15-inch MacBook Pro rising to $199 for the 13- and 15-inch MacBook Pro with Retina display and the 16-inch MacBook Pro.

› What should I do before I put my Mac in for repair?

If your Mac is still functional apart from the fault it's going in to fix, it's really important to take a full backup of its storage drive before you drop it off. While it's unlikely that anything awful will happen to your Mac while it's in for repair, it's still possible that you'll end up with a blank drive once it's returned. For example, a new logic board for your Mac may mean a brand new SSD too. You should also enable FileVault if you haven't already, to protect your personal data. This encrypts your hard drive or SSD and requires your account password to log in, so nobody else can access your files while your Mac is out of your care.

› Can I fix my Mac myself?

We'd never say never, but we'd also say that the newer the Mac, the harder it is to do anything with: for example, recent MacBooks have proprietary "pentalobe" screws, soldered-in memory, and batteries that are glued into place. Your local repairer will have the necessary tools and techniques you may lack.

› What's the hardest Mac to repair?

It's a constantly changing list but right now the Mac teardown experts at iFixit.com give the 16-inch Intel MacBook Pro just one out of ten for repairability and the 2019 13-inch MacBook Pro gets two out of ten. The 16-inch almost seems designed to frustrate fiddling: if a key component isn't glued or soldered to something, it's riveted instead. iMacs are a little easier once you get the screen off – iFixit gives the 2020 27-inch four out of ten for repairability – but they're still very fiddly.

› Is Apple the best place for a hardware repair?

If you're still under warranty or AppleCare+, we'd say yes. But if you're out of warranty or cover, then Apple can be very expensive for some repairs. Apple has a program for independent repairers called the Independent Repair Provider Program: they benefit from Apple training, tools, and parts.

› Can I get my Mac repaired under my home insurance?

Possibly, but it depends on what kind of cover you have and what excesses may apply. Home contents insurance doesn't cover you for equipment failure such as a dead SSD, but if your policy includes accidental damage cover, you may be protected if an accident smashes your iMac or fills your MacBook Air with orange juice (deliberate sabotage won't be covered, though). Watch out for excesses: in some cases the policy excess means you'll still have to pay some or even most of the repair cost yourself.

Image rights: Apple.

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BOOST YOUR BATTERY LIFE

Discover how to improve the performance of your MacBook, iPhone, iPad, and Apple Watch batteries – plus maintain their health

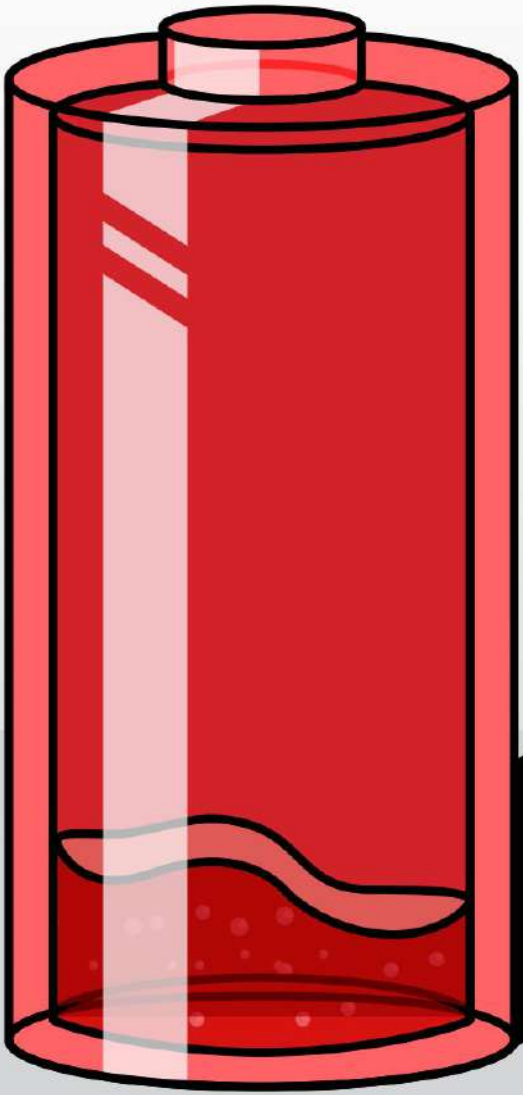
BY NICK PEERS

Are you getting the maximum use out of your mobile devices' batteries? Despite all the technological innovations of the past few decades, your Apple devices – from the Watch all the way up to the MacBook – rely on a type of battery first used in commercial products back in 1991. That said, today's lithium-ion batteries are a far superior beast to their predecessors, and with each successive generation Apple finds ways to improve them further.

But they're not perfect. Batteries don't last forever, for starters, and rarely achieve the maximums quoted in the promotional literature. But, armed with our tips and techniques, you can improve the performance of all your Apple devices to deliver longer use between charges, and to maintain your battery's overall health for longer.

In this feature you'll discover what power-sapping settings to disable, plus how to properly manage your battery to lengthen its lifespan. We'll also reveal the various options available to you when your battery finally reaches the end.

Finally, what about those times when you're unable to connect your phone or MacBook to a power outlet for an extended period? If you frequently run out of juice on the road, then check out our picks of the best mobile power banks and battery add-on packs. Ready to add hours to the life of your battery on a day-to-day basis? Read on...



Boost your iPhone/iPad battery

Give your battery a health check, then make it last longer between charges

How to make your Watch last longer

You can improve your Watch's battery in the following ways... Choose a minimal watch face design (or switch off Display & Brightness > Always On). Enable Reduce Motion under General > Accessibility. Connect to your iPhone via Bluetooth for connectivity. Follow the same suggestions for your iPhone – minimize app and email notifications, reduce brightness, and so on.

Cut down on effects and colorful screens to get more battery life.

However carefully you look after your iPhone or iPad, its battery has a limited shelf life. If you're convinced your mobile isn't running as fast as it used to, it's not just a case of planned obsolescence; it may also indicate your battery is past its best.

FIX BATTERY PROBLEMS

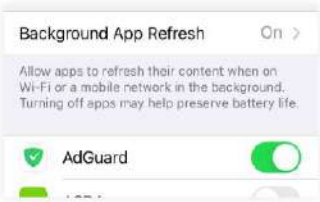
As batteries age, they begin to lose their capacity to hold a charge for as long as they used to. And as this diminishes, the likelihood of your phone suddenly shutting down unexpectedly increases too. As a result, iOS contains performance management technologies that are designed to cap the maximum performance of your phone's CPU or GPU to prevent it overloading an ageing battery. The knock-on effect is that overall performance decreases.

If you've noticed your phone starting to slow down, check your battery health — if a replacement is recommended, then a new battery will not only go longer between charges, but you should also regain lost performance too. Open Settings and navigate to Battery, then tap Battery Health. You'll immediately be notified if there's a problem — or tap the "Learn more" link to get a detailed overview of how your battery works and what Settings can tell you about it. While you're here, make sure Optimized Battery Charging is on to protect the battery from degradation caused by remaining at

Maximum Capacity
91%
This is a measure of battery capacity relative to when it was new. Lower capacity may result in fewer hours of usage between charges.
Peak Performance Capability
Your battery is currently supporting normal peak performance.

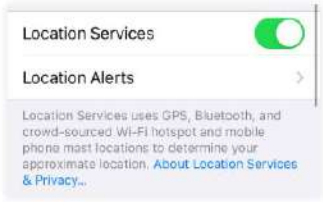
Make sure that the Optimized Battery Charging option is enabled.

HOW TO Reduce power consumption


Background App Refresh
On
Allow apps to refresh their content when on Wi-Fi or a mobile network in the background. Turning off apps may help preserve battery life.
AdGuard

1 Background app refresh

Navigate to Settings > General > Background App Refresh. Tap On to switch it off, or restrict its use to Wi-Fi only. You can also scroll down and prevent unused apps from draining your battery without having to remove them.


Location Services
Location Alerts
Location Services uses GPS, Bluetooth, and crowd-sourced Wi-Fi hotspot and mobile phone mast locations to determine your approximate location. About Location Services & Privacy...

2 GPS usage

Go to Settings > Privacy > Location Services. Set individual apps to Never or "While Using the App," and review System Services too. Go to Privacy > Bluetooth to review (and block) apps that are using your Bluetooth.

3 Wi-Fi over mobile

Whenever you have the option of Wi-Fi for your connection, disable your mobile internet connection, which uses far more power. In poor signal areas, enable Airplane Mode to avoid wasting energy looking for a connection.

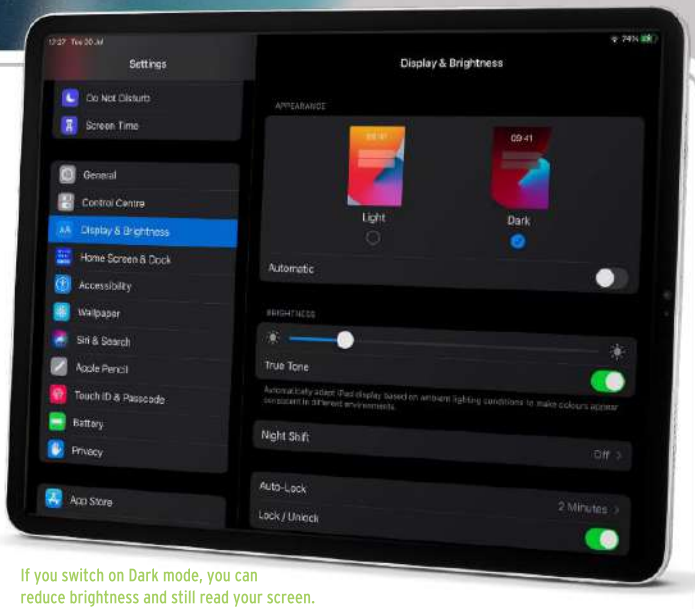
a high charge level for long periods of time.

If your battery requires replacing, Apple can fit a new one out of warranty for $49 or $69, plus delivery, depending on the model. If you have a local Apple store or premium reseller, you may be able to get the repair done while you wait. Other local phone repair shops may also offer battery replacements, often cheaper than Apple, but these are likely to be third-party batteries.

The Battery tool under Settings also provides statistics about battery usage, reveals which apps are using the most power, and lets you switch to Low Power Mode (see below). If you want more info about battery usage, the App Store is full of battery apps — our favorite is Battery Life (free, batterylifeapp.com), which provides estimates of how long your battery will last depending on specific usage scenarios.

When it comes to extending battery life between charges, Low Power Mode is a bit of a blunt instrument. There are plenty of other ways you can eke additional minutes — or even hours— from your phone battery. Start by reducing your screen brightness — navigate to Settings > Display & Brightness, flick the Automatic switch to off, then reduce the brightness slider. You'll find the screen becomes harder to read, so switch to Dark Mode and you'll discover it's more readable, even at lower brightness levels. While you're here, turn off "Raise to Wake" to prevent the screen coming on every time you lift up your iPhone.

You can also disable vibration alerts. Go to Settings > Sounds & Haptics to flick both vibrate options to off, then scroll down and disable keyboard clicks and the Lock Sound too. For more Settings-based battery tips, check out the steps opposite.



If you switch on Dark mode, you can reduce brightness and still read your screen.

What is Low Power Mode?

>>>WHEN YOU NEED to eke out as much battery life as possible on your iPhone, you need to switch on Low Power Mode.

You'll be prompted to enable it when your battery drops to 20% anyway, but you can switch it on manually at any time via Settings > Battery, at which point your battery indicator turns yellow.

In iOS 14 it disables email fetch and background app refreshes, automatic downloads, several visual effects, and defaults Auto-Lock to 30 seconds. iCloud Photos are temporarily paused, and 5G is disabled for everything except video streaming. Low Power Mode automatically switches off when you've charged your iPhone to 80% or higher, but if you open Shortcuts, select Automation, and tap Create Personal Automation, you can configure it to come back on automatically when your battery falls below a certain level. Scroll down and tap Battery Level, set your desired level, select Falls Below, then tap Next followed by Add Action. Type "low power" into the search box and tap Set Low Power Mode. Tap Next, then Done to finish.

Image rights: Apple.

Boost your MacBook's battery

Here's how to avoid running out of juice when you're working on the go

The biggest power hogs

Most power-intensive processes are hardware related: Your laptop's screen and speakers, wireless tech, and any connected hardware such as external drives. Also switch off your MacBook's keyboard backlight when not needed (System Prefs > Keyboard). There are also background processes you may want to keep in check. These include Spotlight indexing (switch off by dragging your drive to the Privacy tab under System Prefs > Spotlight) and app notifications (disable all but the most essential). Your Mac will alert you to apps using lots of system resources, and power, when on battery power. Click the battery icon in the menu bar to see them.

These days, modern MacBooks offer jaw-dropping battery longevity — thanks to Apple's new M1 chips they can claim up to 20 hours' life for the latest MacBook Pros. That's great if you've bought a new model, but what about the rest of us?

The good news is that, whatever the age of your MacBook, you can tweak and optimize the battery to ensure you get the maximum length of time from it. But before we begin, let's perform a quick health check.

VERIFY BATTERY STATUS

You can find out about your battery via System Report (look in the Hardware > Power section), but it's missing some key information that you can bring together into one convenient spot using a third-party app called coconutBattery (coconut-flavour.com/coconutbattery).

Once installed, not only will the app reveal info you can now see in System Report — namely its cycle count and its overall health — but you'll also get to compare your MacBook's current battery capacity to its original capacity; this gives you an idea of how much charge has been lost over time, as well as other useful stats, such as temperature. A Plus version offers more features but, as you'll see shortly, your money is better spent elsewhere.

The number of cycles reveals how many full recharging cycles your battery has undertaken — most Macbook batteries from 2010 onwards support up to 1,000 cycles (visit bit.ly/

Turbo Boost Switcher helps extend Intel-based MacBook batteries.

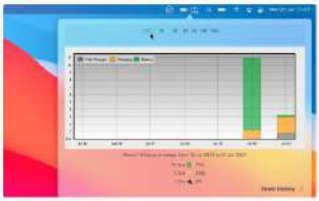
HOW TO Maintain battery health

1 FruitJuice battery health

Improve your battery's performance by tracking its condition and use with FruitJuice ($9.99, fruitjuiceapp.com). After purchasing and installing, the app will ask you to perform a maintenance cycle – follow the steps to do so.

2 Follow the guidance

The app will recommend a set amount of time for you to run the battery each day; following this guidance will lengthen its life and ensure it works optimally. Click the app's menu bar icon for an update.



3 Long-term monitoring

Going forward, FruitJuice will continue to monitor your battery's health and – if it becomes necessary – will prompt you to perform additional maintenance cycles. Use the graphs to get a visual idea of your battery usage.

bccmacbooks for confirmation). If you get an alert about your battery needing replacing, either now or in the near future, check out "Battery begone!" below for your options.

Even if your battery is in reasonable condition, look for ways you can maintain its health to ensure it will give you many years of service before needing to be replaced. For example, don't leave it permanently plugged in and perform the occasional maintenance cycle (charge to 100%, then leave it on battery until it drops below 20%) to recalibrate it. If you need reminding on a daily basis, then find out how FruitJuice can help in step 1 on the opposite page.

Once your MacBook's health check is done, it's time to examine how to improve the time your MacBook runs between charges. Start by verifying basic system settings: Open System Prefs > Battery and verify the display is set to go off after a short period, and that both "Put hard disks to sleep…" and "Slightly dim the display…" are checked, while the Power Nap function is unchecked. The biggest battery power hogs are revealed on the opposite page, but many hardware settings can be configured via System Prefs, and you can further reduce the strain on your display by switching to Dark mode.

Get a detailed view of your MacBook's battery with coconutBattery.

But what about background processes and power-hungry apps? Here, you want a solution that only kicks in when your MacBook is running on battery power. Once again, third-party apps offer a variety of different solutions.

Endurance ($20, endurance app.com) offers a "low-power mode" that throttles the processor, dims the screen, and sends background apps to sleep when not being used. Turbo Boost Switcher Free (rugarciap.com) allows you to throttle your processor for free, and AppPolice (github.com/AppPolice) lets you rein in individual apps.

Battery begone!

>>>YOU'VE DETERMINED YOUR MacBook's battery needs replacing, so how do you go about doing so? The obvious choice is to use Apple's own servicing programmes (see bit.ly/macservrep for details). Out-of-warranty replacements cost either $129 or $199 depending on your model. Be aware that MacBooks that are 10 years or older may not be covered – see bit.ly/servafterwarr.

There are plenty of repair options available in the US – just make sure they're backed up by good reviews or authorised by Apple. You can check to see if the store in question is an Apple Authorized Service Provider or an Independent Repair Provider here: bit.ly/m1186asp.

Finally, IFixit (store.ifixit.com) provides a range of DIY battery replacement kits with all the tools you need. Be sure to read the detailed step-by-step guide (under Repair Guides) for your model before deciding if your servicing skills are up to scratch. There's a good Community link and an Answers Forum available too, so check those out.

DIY battery replacements are possible – but they're not for the faint of heart.

Image rights: Apple, IFixit.

The best battery boosters

Give your battery some juice while on the road with these accessories

iPhone battery cases/packs

MagSafe Battery Pack

$99 **From** apple.com

Features Lightning charging port

>>>This brand-new battery pack is designed to clamp to the back of your iPhone 12, using magnets, to keep its battery topped up on the go. While it's a bit bulky, your phone should still fit in your pocket, and the magnetic connection is strong. It's also designed to integrate into iOS, so you get a notification when it's connected and your battery level glows green as it's being charged.

Trswyop 4.7-inch battery case

Around $37 **From** amazon.com

Features 6,000mAh charger

>>>This unofficial battery case works with any 4.7-inch iPhone from the 6 up to the latest SE model. The case features a pass-through Lightning adapter so you can still sync your phone (but doesn't work with Lightning headphones). Four LED lights reveal how much power is left in the external battery, which should suffice for two or three full charges.

iPhone Smart Battery Case

From $99 **From** apple.com

Features Available for iPhone 7 or later, features vary with model

>>>Apple's official case is the obvious choice for those looking to boost their battery life without a MagSafe connection during the day, with up to 50% more power promised. It works by recharging your iPhone battery from the smart case's own battery. Different cases are available for all models from the iPhone 7 upwards.

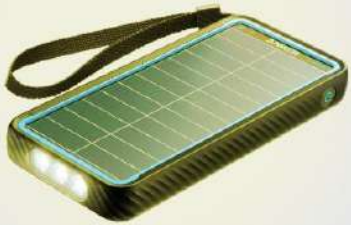
Anker PowerCore Magnetic 5K

$54.99 **From** us.anker.com

Features 5,000mAh battery pack, USB-C charging port, MagSafe ready

>>>Like Apple's MagSafe battery pack, the Magnetic 5K attaches to the back of any iPhone 12 series model, effectively doubling the device's battery life. The Magnetic 5K also comes with a dual-direction USB-C port for easy charging, plus an LED indicator display so you can see how much charge remains.

iPhone battery cases/packs



Anker PowerCore Solar 20000

$54.99 **From** us.anker.com

Features 20,000mAh solar charger, includes 1x USB-C port (18W), 1x USB-A port (12W)

>>>This charger is designed for outdoor use – charge it up before you go then let the sun continue to trickle-charge your iPhone or iPad (including the iPad Pro). So long as you don't expect miracles – it'd take days to recharge the battery from solar power alone – you'll find it a handy travel companion.

Pxwaxpy Solar Power Bank

Around $40 **From** amazon.com

Features 26,890 mAh, 2x USB-A ports

>>>Want a heavy duty solar-powered battery that won't break the bank? The Pxwaxpy has a larger battery than the Anker, but there's no USB-C option, it's not waterproof, and the two USB-A ports are slower. But there's plenty of juice for multiple recharges, even without being able to top up the charger using solar.

Image rights, clockwise from top-left: Apple, Trswyop, Anker, Pxwaxpy, Anker, Apple.

iPhone/iPad power banks

Mophie Powerstation All-In-One

$139.95 **From** zagg.com
Features 8,000mAh battery, wireless charging, 1x USB-C port, 1x USB-A port
>>>This portable charger is aimed firmly at the Apple-phile on the go. It can charge up to four supported devices at once, with wireless options for compatible iPhones and AirPods. There's also USB-C and USB-A options, and you will even find a pop-up magnetic charger for your Apple Watch.

Mophie Powerstation Wireless XL

$69.95 **From** zagg.com
Features Wireless charging, 10,000mAh
>>>This wireless charger works directly with Qi-enabled iPhones and AirPods. It also has a USB-C port for charging other devices too at lightning speed thanks to its 18W output. It comes with a 10,000mAh battery, and supports pass-through charging of both devices and itself when connected to power via your phone's Lightning cable.

Belkin Pocket Power 5K Power Bank

$29.99 **From** belkin.com
Features 5,000mAh, USB-A port
>>>It's slim, unobtrusive, and minimalistic, but the USB-A port is capable of charging any iPhone, iPad, or Apple Watch with the right cable. Its capacity doesn't match anything else in this list, but again this power bank is for portability, and you should still be able to charge your phone one or two times depending on its model. Perfect for day trips when you need to travel light.

iWalk Portable Charger

Around $55 **From** amazon.com
Features 9,000mAh battery, integrated Lightning cable
>>>Looking for a portable power bank that can charge your Apple Watch and iPhone simultaneously? This model will appeal – there's a USB-C port for later phones and an integrated Lightning connector for older models. You simply place your phone on top of the battery (or wrap your Watch around it) to charge it on the go, and the battery itself easily slips inside a jacket pocket.

Mac power banks

MaxOak K3 Power Bank

$135.99 **From** maxoak.net
Features 36,000mAh, DC-to-MacBook connectors
>>>The MaxOak K3 is aimed specifically at MacBook users, supporting models going all the way back to 2006 thanks to a DC port and included MagSafe 1 and 2 cables, plus a USB-C port supporting newer models. The 36,000mAh capacity provides at least one full charge for your MacBook and can also be used to charge Lightning-connected iPhones and iPads too.

Krisdonia 50,000mAh

$125.95 **From** amazon.com
Features 50,000mAh, 2x USB-A, 1x USB-C, Magsafe 2 adapter
>>>The Krisdonia 50,000mAh power pack boasts no fewer than four ports, enabling you to charge up to four devices simultaneously. USB-A and USB-C ports handle modern MacBooks, your iPad and iPhone, while a MagSafe 2 adapter supports MacBooks going back to 2012. An LED on the front tells you how much charge remains (in percentage), and the power pack itself can be recharged from empty to full in under seven hours.

Image rights, clockwise from top-left: Zagg, MaxOak, Shenzhen Nejifu Technology Co, iWalk, Belkin.

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The home of technology

techradar.com

REVIEWS

TOUGH TESTING, TRUSTED RATINGS

HERE AT MAC|LIFE we believe you should only buy the things that you really need, which is why our Reviews section is so important to us, and you. We don't want you to waste time and money on inferior products, and while we aim to include only the best hardware and apps, occasionally we like to include products that look promising, even if they don't always deliver.

We only use carefully selected experts, with specialist knowledge in their respective field, so no matter which review you're reading, you can be confident the person who's tested it knows their stuff, allowing you to make an informed purchase.

Each review is rated using a five-star system, with half stars, which is easy to understand because we give an explanation next to each one. The products that really stand out, those with a five-star rating, get a *Mac|Life* Editor's Choice award.

Mac|Life EDITOR'S CHOICE ★★★★★

Only the best…

The products that really stand out in the mag – those that receive a five-star rating – get the *Mac|Life* Editor's Choice award. It doesn't get any better than this, so you'd be mad not to buy anything bearing this mighty accolade.

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GEAR UP

The latest & greatest hardware

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51 **Incase Hipsack w/Bionic®**

Image rights from left: CORSAIR, Zendure, Nikon, Math Easel LLC, Luma Touch LLC, BeLight Software Ltd.

Elgato Facecam

A neat webcam that doesn't quite justify its price tag

$199.99 **From** elgato.com

Features 1080p resolution at 60fps, 82-degree field of view, on-board profile storage, privacy cover **Needs** macOS 11 or later

Last issue we examined the Papalook PA930 webcam, an affordable device with excellent image quality but marred by annoying shortcomings. At the opposite end of the spectrum lies the $200 Elgato Facecam, which comes with a high-end sensor and on-board profile storage. So do those features put it a cut above its rivals?

We loved its smooth 60fps output, and it makes such a difference over the 30fps on many webcams. But right out of the box, image accuracy felt a little worse than the $90 PA930. The Facecam didn't cope so well with a bright window at the side of the subject, and we ended up looking dark and murky.

It performed better in lower light, though, managing to avoid the bright, washed-out mess that can result from bright monitor glare. However, in really low light it struggled to compensate. While we remained crisp and noise was unobtrusive, it couldn't brighten us up in the way the PA930 could.

That's not the disaster it could be because Elgato includes its Camera Hub app with every purchase. This lets you adjust a range of settings for your video output — the field of view, contrast, saturation, exposure compensation, frame rate, and much more. Better yet, you can save your changes to the camera's on-board profile so it will remember your setup on different Macs.

Elgato markets the Facecam as perfect for streamers and content creators, which is probably why you get so much control over the video output with Camera Hub. But one upshot of this is that the Facecam does not come with any built-in microphones — after all, most content creators will have their own. If you don't own a mic, though, you're left relying on your Mac's built-in microphone.

There are other snags. Although the Facecam has a privacy cover, it's tough to remove, and when it's a quarter-inch away from the very expensive camera lens, wrestling with it is anxiety-inducing. With it perched on your Mac's screen, the Facecam's mount also obscures part of the menu bar. There's no USB-C adapter for its USB-A connector either, so anyone with a MacBook made in the last five years will need a dongle.

Then there's the price: $200 is a lot to pay for a webcam unless you really want to go for the best, and we're not sure the Facecam earns that accolade. It's beaten for low-light image quality by the Razer Kiyo Pro, and even the PA930 did better in some scenarios (but its design issues make it hard to recommend). The Facecam comes with some excellent software and has a lot of attention to detail, but we're not sure it justifies its high price.

THE BOTTOM LINE. Some neat features, but the price tag is hefty. **ALEX BLAKE**

The monitor mount overhangs your Mac's menu bar, obscuring things from view.

ELGATO FACECAM

- ➕ 60fps output
- ➕ Great software
- ➖ Iffy brightness control
- ➖ Expensive

GOOD

Image rights: Elgato.

The 60fps frame rate comes as standard and gives smooth results.

Image rights: Elgato.

Your iPhone 12's USB-C to Lightning cable can charge both SuperMini and your iPhone.

Zendure SuperMini Lightning

Quick and easy fast charging on the go

$64.99 **From** zendure.com

Features 10,000mAh capacity, MFi certified, 20W USB-C PD input/output, Lightning 12W input

Zendure's SuperMini Lightning is an external battery pack that includes a 20W USB-C input and output port, as well as a 12W Lightning input. It comes with a USB-C to USB-C cable for charging itself and compatible devices. The Lightning input enables you to recharge your SuperMini as well as your iPhone with just the one cable.

It's a compact battery, measuring 3.1 x 2.2 x 1 inches and weighing 6.35oz. It easily fits in the front pouch of a backpack. It's lightweight with a surface area about the same as a credit card, and while a little chunky it's a handy traveling companion. It only comes in bright green, which might not be to all tastes, but it's hard to lose among your other electronics and cables.

The SuperMini packs a punch for its size, with a charge capacity of 10,000mAh and enough juice to charge an iPhone 12 up to 2.6 times or charge it to 60% in 30 minutes. The Lightning input can accept up to 12W of power, so the portable battery can be recharged in about five hours. Alternatively, the 20W USB-C port can charge the battery in about three hours.

Externally, the pack is of a high-quality and looks and feels durable, and it comes with a two-year warranty.

However, there are a couple of things to be aware of. There's no USB-C to Lightning cable (not an issue for those with an iPhone 12) and it doesn't include a wall charger, but keep in mind that most wall chargers are typically USB-A to USB-C or USB-A to Lightning — this battery pack requires a USB-C to Lightning cable.

THE BOTTOM LINE. A portable, quick-charging external battery pack for Lightning or USB-C devices. **NICOLETTE ROUX**

ZENDURE SUPERMINI LIGHTNING

- ✚ USB-C 20W in & out
- ✚ Lightning 12W input
- ✚ Compact size...
- ▬ ...but chunky!

EXCELLENT

Image rights: Zendure.

Small but extremely rugged, the drive powers from a Thunderbolt port.

OWC Envoy Pro SX

A very rugged drive for speed-hungry professionals

240GB $199; 480GB $249; 1TB $349; 2TB $529 **From** owcdigital.com

Features Speeds up to 2847MB/s, IP67 water-resistance **Needs** macOS 10.13 or later

The solid state drives inside modern Macs have been very quick for a number of years, but anyone needing to transfer multiple gigabytes of files for backup or transfer knows the pain of waiting for the process to complete. OWC's Envoy Pro SX is a blazingly fast Thunderbolt drive for Macs and PCs equipped with Thunderbolt 3 or 4, in capacities from 240GB up to 2TB. It's just 8oz, smaller than most smartphones, and comes with a short Thunderbolt 3 cable. It's bootable on a Mac, though not on a PC.

The drive's specialities are twofold: speed and strength. Inside, Aura Pro SSD technology with TRIM support for more efficient disk space management links to the Thunderbolt connection, from which the drive also draws its power. OWC claims up to 2847MB/sec performance and our tests bore this out, with the Blackmagic Speed Test almost hitting that number both using 1GB and 5GB test files. Copying a folder of movies from the Finder to the drive is lightning fast, and copying a file of 2–3GB is so fast that macOS doesn't even have time to open a progress bar window.

It manages all this without needing a fan. Even though it gets a little warm under extended load, the metal casing has a fin design which helps it act as a heat sink. It's also certified to withstand multiple drops and has an IP67 water-resistance rating. For video and audio professionals working on the road as well as home users needing super-fast backup, this is an excellent solution.

THE BOTTOM LINE. A fast, weatherproof SSD for transferring files. **HOLLIN JONES**

OWC ENVOY PRO SX

- ⊕ Extremely fast file transfers
- ⊕ Rugged exterior
- ⊕ Slim and small
- ⊖ 2TB version gets pricey

EXCELLENT

Image rights: Other World Computing, Inc.

Nikon Z fc

Retro looks and handling, with the best in modern kicks

$959.95 (body only) **From** nikon.com

Features 20.9 megapixels, 3.0-inch screen, Nikon Z mount lens, Wi-Fi, Bluetooth, 14.0 oz

Nikon has taken inspiration for the Z fc from its own FM2 film SLR from the mid-1980s. Bringing things up to date here, we get 20.9 million pixel effective digital images or 4K video clips.

The seductively retro SLR-like pentaprism design of the Nikon Z fc with its tactile knobs, levers and dials, will appeal to the photo enthusiast wanting to get hands-on with manual selections, rather than pointing it and letting the camera do all the work.

Though it appears a serious piece of tech, it's surprisingly lightweight and manageable in the hand, which the complementary compact and lightweight choice of lenses – either a wide-angle 28mm or the 16-50mm zoom – further exemplifies.

As with most mirrorless cameras and all DSLRs, for setting up our shots there's a choice of either using the eye-level electronic viewfinder, or the larger, more obvious rear plate LCD instead. This LCD can be flipped out and turned round to face whoever is in front of the lens for those self-portraits.

The Z fc features a regular APS-C sized CMOS sensor, the same as that of the manufacturer's earlier Z 50 camera. Bringing performance in line with the cameras higher up in the Z range, it also features the latest breakthroughs in autofocus technology: both-eye-detection AF for zeroing in on the pupils of human subjects, along with animal AF, ensuring animals are also sharply rendered. Useful for selfies and first-person videos.

The Nikon Z fc's performance is as swift and responsive as you'd expect from a mirrorless camera or DSLR – which is to say that if we see the image in our mind's eye, the camera is responsive enough for us to be able to capture it. The colors delivered were rich without being unnatural, and it's easy to achieve pleasingly defocused backgrounds and sharp subjects with the provided zoom.

While an APS-C sensor will rarely match the performance of a full-frame alternative, what you're getting in terms of detail isn't disappointing, and on a par with most competing mirrorless cameras and sub-$1,000 DSLRs. Being critical, there is a tendency to overexpose if the camera mode is set to auto. However, exposure can be easily and quickly dialed down, if needed, via the top plate exposure compensation dial.

The Nikon Z fc offers the best of both worlds with respect to handling and design. Use the manual dials and switches if you're a bit more familiar with how tweaking photographic settings impact the end result, or, if you're not, leave everything on automatic and simply point and shoot. Thanks to the camera's outwardly sophisticated looks, no one will realise you're merely winging it.

THE BOTTOM LINE. A desirably retro-fashioned yet affordable entry point into Nikon's growing Z series mirrorless camera lineup. It's "only" an APS-C sensor but it's still very capable. **GAVIN STOKER**

NIKON Z FC

- ✚ Stylish design
- ✚ Growing lens lineup
- ✚ Great touchscreen
- ➖ "Only" an APS-C sensor

AWESOME ■■■■■

The Nikon Z fc's controls encourage you to get hands-on with it.

The stereo speakers can be battery powered and produce 10W of sound.

BOSS CUBE Street II

A feature-packed mobile performance amplifier

$349.99 **From** boss.info

Features 10W output, two 6.5in speakers, USB-B port, looper, automatic harmony function

The Cube Street II is an ultra-portable amplifier for live performance that weighs just under 10lb and is powered via the bundled PSU or eight AA batteries. While mobile you'll get up to eight hours of performance at the full 10W of power, or a little more in Eco Mode, which switches down to 5W.

There are two separate input channels, the first a combined jack/XLR format mic/instrument channel with three-band EQ and reverb as well as a Harmony function to automatically harmonize your vocals. The second is a guitar/mic channel with nine virtual guitar amp types, EQ, reverb, chorus, delay, and a tuner.

A built-in looper with up to 45 seconds of stereo sampling time lets you layer up live loops and has a foot switch input for on/off control, as does the Harmony mode. You also get a line out and headphone/record out for connecting to a PA or recording the processed sound, and a USB-B port for recording or livestreaming via a Mac. Finally there's the iCube Link feature, which is essentially an aux input that lets you connect a mini jack connector from a cellphone or other device to add backing tracks to your signal path.

An optional $49 Bluetooth adapter enables wireless audio streaming to the amp and gives you expanded control of the onboard effects using the free iOS Cube Editor app.

The amp is louder than you expect, with powerful, clear sound. With plenty of input and output options, great onboard effects and a looper, you can dispense with extra pedals. It's an excellent all-in-one solution for mobile performance.

THE BOTTOM LINE. A great-sounding amp with powerful tech inside. **HOLLIN JONES**

BOSS CUBE STREET II

- ✚ Super-portable and powerful
- ✚ Excellent built-in FX
- ✚ Plenty of I/O options
- ✖ Bluetooth adapter could be included

EXCELLENT

Image rights: Roland Corporation.

Logitech's K860 may look strange but it's designed to be kind to your wrists.

Logitech Ergo K860

This ergonomic "split" keyboard helps reduce wrist-strain

$129.99 **From** logitech.com

Features Full-size QWERTY keyboard, ergonomic design, pairs with multiple devices

Most modern keyboards tend to follow Apple's "thin and light" template but, as the name suggests, Logitech's new Ergo K860 keyboard instead focuses on ergonomics rather than mere eye-candy. The "split" layout of the keys may look odd at first, but it's designed to allow your arms and wrists to rest at a more natural angle when typing. (It has "54% more wrist support," according to Logitech.)

The keyboard layout will probably feel strange initially, but it's worth persevering with if you're concerned about preventing wrist-strain and other injuries. You can also adjust the legs on the keyboard to find a typing angle that suits you, and there's a comfortable (non-removable) wrist-rest that's cushioned with foam and covered with a soft, easy-to-clean fabric.

The K860 is versatile, too. It's a full-size keyboard, with a top row of 12 Function keys, along with a numeric keypad and an additional set of navigation keys. The Function keys double-up as controls for brightness, volume, and other settings, and the keyboard knows when it's connected to a Mac and provides keys for Mac features such as Spotlight and Mission Control.

The keyboard can connect using either Bluetooth or Logitech's USB radio dongle, and it can switch between three separate devices at the tap of a button, including Macs, PCs, and iPad. The only negative is that the K860 doesn't have its own rechargeable battery. However, Logitech does include two AAA batteries, which it says should last for two years.

THE BOTTOM LINE. Ergonomic layout and Mac-friendly features make the K860 ideal for people who want to avoid wrist-strain. **CLIFF JOSEPH**

LOGITECH ERGO K860

- ✚ Ergonomic design reduces wrist-strain
- ✚ Compatible with Mac, PC, iPad
- ✚ Useful Function keys
- ✖ Unfamiliar key layout

EXCELLENT

Image rights: Logitech.

The best mice for good desk health

Work better and avoid injury by using an ergonomic mouse

All Macs and PCs are sold with a mouse or trackpad, so it's easy to take these little input devices for granted. But if you're working on your computer for eight hours or more every day then it's important to find one that suits you and has a comfortable ergonomic design that can reduce wrist-strain and other forms of repetitive stress injury (RSI). There are dozens of mice available from companies other than Apple, of course, but not all of them will be fully Mac-compatible, so here's our pick of the best ergonomic mice that are suitable for use with Macs. **CLIFF JOSEPH**

› Apple Magic Trackpad

$129 **From** apple.com

Features Bluetooth, pressure-sensitive, one-month rechargeable battery

Apple's mice have never had a very good reputation, but its Bluetooth wireless Magic Trackpad provides a good – if rather expensive – alternative. The advantage of a trackpad is that it allows you to rest your wrist on your desk, without constantly gripping and lifting a mouse, and then just control your Mac with gentle movements of your fingers.

The large trackpad measures 6.3in wide and 4.52in deep, and as well as simple mouse-clicks it also supports Apple's "multi-touch" gestures, which can perform additional tasks such as zooming or rotating an image by using two or three fingers. It's pressure-sensitive too, so you can activate "force touch" features such as the Mac's Quick Look previews by using different amounts of pressure as you touch it.

Multi-touch controls Expensive **GREAT**

› Kensington Expert Mouse

$109.99 **From** kensington.com

Features Bluetooth and RF, four buttons, scroll-ring, 12-month battery (2x AA)

Trackballs are something of an acquired taste, but many people find them more comfortable than trackpads as they allow you to rest your wrist on the desk and control your Mac with very small movements of your fingers. Kensington's Expert is a little pricey but it's well designed, with a detachable wrist-rest and four large buttons that can be programmed using Kensington's Works app. It also has a rotating "scroll ring" that surrounds the central trackball and functions like the scroll wheel on an ordinary mouse.

The Expert can connect using either Bluetooth or the USB radio dongle that's included. It doesn't have a rechargeable battery, but Kensington includes two AA batteries, which should last for a full year before you have to buy replacements.

Comfortable design Programmable buttons **GREAT**

Image rights from left: Apple, Kensington.

Logitech MX Ergo

$99.99 **From** logitech.com

Features Bluetooth and RF, six buttons, scroll-wheel, four-month rechargeable battery

The MX Ergo gives you the best of both worlds, combining a four-button mouse with a small trackball set onto the side of the device and controlled with your thumb. That feels a little odd at first, but reduces strain by allowing you to move the mouse cursor without constantly gripping the device. The base of the Ergo is also hinged so that you can lie it flat – like a conventional mouse – or tilted upwards to reduce the strain on your wrist.

The Ergo has six buttons and a scroll wheel, which can be programmed using the Logitech app. You can pair the Ergo with two different devices, using either Bluetooth or the RF (radio) dongle included in the box. Oddly, though, it uses a micro-USB cable for charging, so Macs with only USB-C will need an adaptor.

Ergonomic design Programmable buttons **EXCELLENT**

Logitech MX Vertical

$99.99 **From** logitech.com

Features Bluetooth, RF and USB, four buttons, scroll-wheel, four-month rechargeable battery

The MX Vertical mouse takes a traditional mouse design and turns it on its side into what Logitech refers to as a "natural handshake" position. This allows you to rest your wrist comfortably on the desk and move the mouse around without twisting your wrist flat. The mouse can connect via Bluetooth or Logitech's own RF (radio) dongle, but it can also work as a straightforward wired mouse when using the USB charging cable included in the box.

The upper panel houses traditional left and right mouse buttons and scroll wheel. There are also two additional buttons just above your thumb, which can be programmed using the Logitech app. However, we weren't wild about the position of those buttons, so try out the mouse in a shop before buying.

Reduces wrist-strain Wired and wireless modes **GREAT**

Image rights: Logitech.

The V84 is a compact mechanical keyboard, complete with the Mac's Cmd and Opt keys, and 12 function keys.

Vissles V84 (2.0) Mechanical Keyboard

A Mac-friendly typing experience – and then some

$119 **From** vissles.com

Features Bluetooth and USB connectivity, 12 function keys, rechargeable battery (up to 180 hours)

The slimline designs used for many modern keyboards may look elegant, but the low-profile keys feel limp and lifeless (yes, Apple, we're looking at you). The latest 2.0 version of Vissles' V84 keyboard is a good alternative, as it uses a good old-fashioned mechanical design, with a switch mechanism inside each key that feels much firmer and more responsive.

The V84 has a "75% layout", which means that it lacks a numeric keypad, but it measures just 12.4in wide, so it's a good option if you're a bit tight for desk space.

The lack of a numeric keypad may also be a problem for some, but the V84 does have a top row of function keys that can double up for controlling brightness, volume, and other settings. And, running down the right-hand edge of the keyboard there's a set of navigation keys — Page Up/Down, etc — for browsing through web pages or long documents. Most importantly, the keys travel well and feel firm and responsive.

The V84 is designed for the Mac, and has the Mac's traditional Cmd and Opt keys, so you'll feel at home when using it. Unusually, though, Vissles includes some spare replacement keys that are designed for Windows, so you can use it with a PC as well. You can use it as a Bluetooth wireless keyboard, but we were pleased to find that it also works as a wired keyboard too, with a USB-C to USB-A cable included in the box.

The multi-color backlight effects just seem a bit gimmicky, though, and the macro-recording function is poorly explained in the manual.

THE BOTTOM LINE. Some features aren't explained well, but the V84 is a solidly built mechanical keyboard. **CLIFF JOSEPH**

VISSLES V84 (2.0) MECHANICAL KEYBOARD

- \+ Firm, responsive mechanical keyboard
- \+ Bluetooth/USB wired connections available
- − No numerical keypad for data entry
- − No Mac app

GOOD

Image rights: Vissles.

Incase Hipsack w/BIONIC

Secure your valuables on the move

$69.95 **From** incase.com

Features BIONIC® ripstop construction

The Incase Hipsack w/BIONIC® is a bag you can use for travel or every day. It'll easily hold your iPhone as well as many of your other items. It's made from BIONIC® yarn, which is a durable, soft, rip-stop, abrasion-resistant fabric created from recycled oceanic plastic waste. The wide, sturdy strap is fully adjustable, so you can comfortably wear it around your waist or across your body. It's available in two colorways: Bionic Blue and Sand.

The bag measures 8.5 x 5.5 x 2.5 inches — larger than most hip bags. The quick access zippered top compartment is only big enough for an iPhone 12 mini; a wide zippered pocket on the front is where you would stow your iPhone 12 Pro Max. Inside the roomy main compartment, there is a narrow but deep zippered valuables pocket, suitable for cash and cards. A velcro flap pocket next to it could hold thicker items, like a battery pack. On the other side of the main section is a zippered pocket that's nearly the full width of the bag — ideal for a passport. There are also two mesh slide pockets and a detachable key ring.

THE BOTTOM LINE Repurposed plastic to roomy hip bag for carrying your iPhone and more. **KAREN S FREEMAN**

INCASE HIPSACK W/BIONIC®

- ✪ Very roomy, with lots of pockets for organization
- ✪ Comfortable as a hip bag or crossbody bag
- ⛔ Might be a bit bulky for some
- ⛔ Easy access top pouch could be bigger

GREAT

Paperlike screen protector

Enhance your iPad drawing

$39.99 **From** paperlike.com

Features Nanodots technology

Paperlike is a screen protector that enhances the experience of drawing or writing with Apple Pencil. The pack contains two screen protectors, screen wipes, two dust absorbers, and two sticker guide sheets. As ever with a screen protector, the initial fitting must be done carefully.

The plastic film uses "nanodots', a form of microbeads, to create a slightly rough surface, and drawing on this with Apple Pencil provides tactile feedback, that is much more akin to drawing on paper than using the iPad's glass screen alone. Tested with Procreate, it definitely improved the experience. There's slight resistance and grittiness which is a pleasing effect. The developer also claims that over time it places less wear on the Pencil tip than when using standard screen protectors. This newest version uses differently shaped dots to reduce light diffusion and its matte, anti-glare finish makes general iPad use more pleasurable, especially when in brighter environments where reflections can be an issue.

THE BOTTOM LINE. Good protection, plus a tactile drawing experience. **HOLLIN JONES**

PAPERLIKE SCREEN PROTECTOR

- ✪ Enhanced Pencil experience
- ✪ Drawing feels more natural
- ✪ Also great for writing in iOS
- ⛔ Don't mess up while fitting

EXCELLENT

Image rights from left: Incase, PaperLike

On iPad, Weather Strip takes advantage of the larger display for landscape view.

Weather Strip offers a slick UI packed with data, but no iPhone landscape view.

Weather Strip

Scroll to see a daily forecast

Free (for 30 days, $0.99/month thereafter) **From** Math Easel, weatherstrip.app

Made for iPhone, iPad, iPod touch **Needs** iOS 12.4 or later

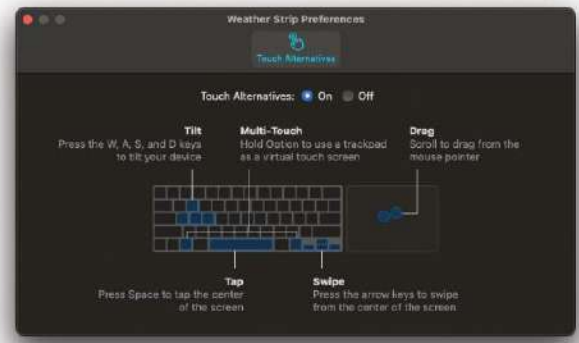
Aside from the snarky attitude of CARROT Weather, most weather apps do the same thing in pretty much the same way. They give you hourly and daily forecasts, a radar view, "feels like" temperature, times for sunrise and sunset, maybe one or two other bells or whistles, and that's probably about it.

Weather Strip offers a unique take by displaying an entire week's forecast in a scrolling horizontal timeline. A thumbnail view at the bottom of the screen makes it a snap to jump directly to a specific day in the week ahead, or swipe through the larger hourly view up top for more detailed information.

Tapping the map icon allows you to manually choose a location anywhere in the world by dropping a marker, but because Weather Strip is fueled by data from the National Weather Service (NOAA), forecasts are currently restricted to the USA. On the plus side, the interactive map includes places off the beaten path (like trails and lakes), and saving multiple locations is a snap; switching between them could be a little less cumbersome, however.

In terms of viewing up-to-the minute data, Weather Strip excels. Extreme weather conditions like incoming storms, hurricanes, flooding, and more are prominently displayed across the top of the timeline where you won't miss them, while UV index, cloudiness, rain/snow, and temperature — both actual and "feels like" — stack along the left edge, updating in real time as you scroll through the hours.

Image rights: Math Easel


Weather Strip Preferences
Touch Alternatives
Touch Alternatives: On Off
Tilt
Press the W, A, S, and D keys to tilt your device
Multi-Touch
Hold Option to use a trackpad as a virtual touch screen
Drag
Scroll to drag from the mouse pointer
Tap
Press Space to tap the center of the screen
Swipe
Press the arrow keys to swipe from the center of the screen

The app also works on M1 Macs, complete with optional touch alternatives.

Curiously, iPhone users can only view the timeline in portrait mode, which equates to about 12 hours of the timeline on screen at a time with our iPhone 12 Pro Max. For an app that's designed to display an entire week's worth of weather, the lack of a landscape view on the device most people always have with them is odd indeed.

This limitation becomes even more peculiar when you discover the iPad does work in landscape view — in fact, you can even install Weather Strip on a Mac running on Apple's M1 chip and expand the timeline across the entire width of your screen if you prefer. (Here's hoping the iPhone gets a little landscape love in a future update.) Notifications are also absent for now, so you'll need to rely on another app should you want to be alerted before the weather goes sideways.

Otherwise, Weather Strip is more than capable enough to become your one and only source for local climate conditions. There are no ads, location tracking, or third-party analytics to interfere with user privacy, and Background App Refresh can be toggled off from your device Settings to keep data use in check.

It's also worth noting that Weather Strip is not actually free — after the first month, you will have to subscribe to keep using the app. That said, the price is extremely reasonable ($0.99 per month or $3.99 for a whole year!), so there's really no reason not to try it and see if this is the one weather app to rule them all.

THE BOTTOM LINE. More than capable, but a couple of features short of being the perfect weather app.
JR BOOKWALTER

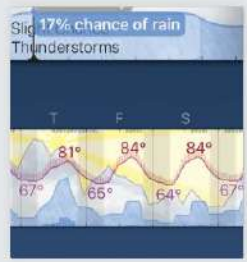
WEATHER STRIP

- ✚ Lovely, data-rich weather forecasts
- ✚ Scrolling horizontal week view
- ➖ No iPhone landscape view
- ➖ Lacks weather alert notifications

GREAT

APP TIPS

Easy ways to get instant weather info

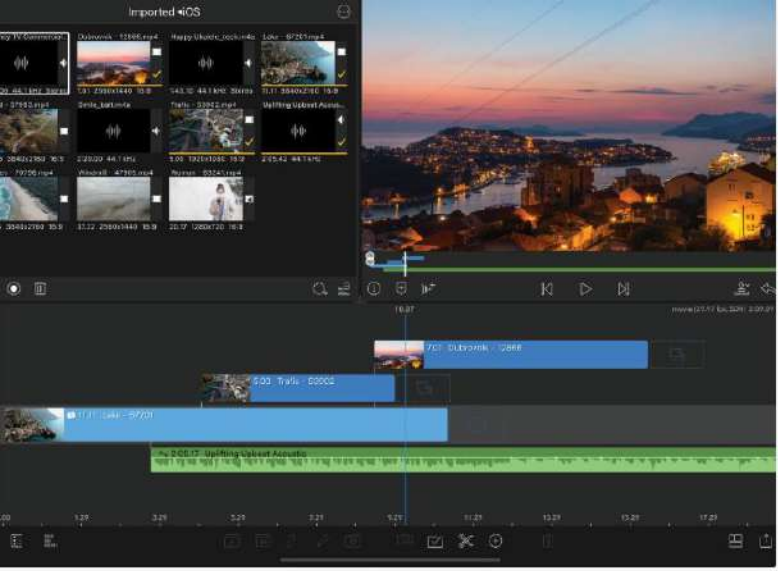


From the timeline, jump back to your current weather conditions with a tap on the left end of the smaller week view.

Show or hide forecast info by tapping the "i" button to display the week ahead without all the data clutter.

In map view, recall saved locations with a tap and hold on any marker; tap the ">" icon to view the selected forecast.

Image rights: Math Easel



Experience desktop-class video editing tools and workflow on your iOS device.

Mac|Life EDITOR'S CHOICE

LumaFusion 3

Professional video editing for iOS

$29.99 (IAPs) **From** luma-touch.com

Made for iPhone, iPad, iPod touch **Needs** iOS 14.4.1

Professional video editing is one task for which many people still favor a machine such as a MacBook over an iOS device, but the latest major update to LumaFusion could change that. Already a remarkably fully featured video editing suite with up to six audio and video tracks, green screen, LUT support, titling, color correction and much more, version 3 introduces some essential new tools and features. Not only that, it's a free update for existing users.

Video, especially when shot in 4K as modern iPhones can do, uses a lot of space. iOS devices have fixed internal storage but now, in addition to downloading from a bunch of cloud services, LumaFusion can read directly from a USB-C or Thunderbolt hard drive. You can edit the files from there without needing to copy them onboard first, so you're no longer constrained by your iPad's limited internal storage. It can even export finished movies to the drive without needing to render it to local storage first.

Video stabilization is an important corrective tool for fixing shaky handheld footage; the new Lock & Load tech from CoreMelt integrated into the clip editor has several presets and more fine-grained controls.

A new video stabilization tool helps to fix shaky footage.

Audio gets a big update too. Tap into the audio editor for any clip and you now get a graphic equalizer that can be used to quickly enhance or diminish different frequencies, say to get rid of hiss or rumble. Audio Units are now supported, so third-party effects like reverb or echo that you have installed now become available to use in a project.

The improved workflow has new numerical input for sliders so you can be precise when moving and sizing content, and a resizeable interface which allows quick and easy drag-to-resize of preview, library, and timeline windows. The app is well-adapted for touch, but being feature-heavy it also benefits greatly from the addition of an Apple Pencil or mouse for faster and more precise input.

THE BOTTOM LINE. A remarkably powerful and reasonably priced video editing suite for iOS. **HOLLIN JONES**

LUMAFUSION 3

- USB-C drive support is a game changer
- Great new audio tools
- Reasonably priced
- Desktop-class features

AWESOME

Image rights: Luma Touch.

Flocks

The wisdom of crowds?

$0.99 **From** nada.studio

Made for iPhone, iPad, iPod touch **Needs** iOS 13.0 or later

There's a fine line between making a clever, challenging puzzle game and creating something that is abstruse and frustrating. *Flocks* really wants to be clever, but its levels are more often exasperating than satisfying.

You control a handful of small blue people to complete various tasks. In early levels you must roast a giant marshmallow over a fire, for instance. As the game progresses its levels get trickier, with timers, buttons, and vehicles thrown in.

The problem is that the challenge often comes from the game's controls, which are clunky and awkward. When you only have a few seconds to complete a level, that's a real problem.

Flocks uses a distinctive visual style throughout, and it looks great.

Other times, you're let down by irritating foibles. For instance, in one level you walk a character onto a moving platform on the back of a truck. You then carefully move the vehicle into place and raise the platform, but at any point while driving the truck, the character can fall off. You must then move the unwieldy truck back to the start and try again, never knowing if the same thing will repeat. It feels tedious and irksome.

There's also a lack of information throughout. Each level has a short (usually one word) descriptor, and in early levels important objects are highlighted. But other than that, you're on your own. That would be fine were the results not so confusing. One level has numerous objects scattered on the floor, and among them is one that you need to pick up and throw. Good luck finding it — or even working out you need to grab it. It's even worse when you're on a timer with no clue what to do.

It's a shame, because *Flocks* has a lot going for it. The sound is great, levels are packed with quirky, colorful illustrations, and it makes good use of haptic feedback. We love the idea of using groups of characters to solve puzzles, and some levels perfectly demonstrate this.

But attractive visuals and sounds mean little when the gameplay is so frustrating. There are good experiences to be found in *Flocks*, and fixing the controls would help make it more enjoyable. But we can't help thinking it could have been much better.

THE BOTTOM LINE. This is a decent puzzler that frequently frustrates. **ALEX BLAKE**

FLOCKS

- ➕ Beautiful graphics
- ➕ Some fun levels
- ➖ Poor controls
- ➖ Can be frustrating

SOLID

Often you will know exactly what to do, but wrestling with the controls makes finishing the level tricky.

Image rights: nada.studio.

Art Text 4.1

A deceptively fun way to create textured graphics

$29.99 (IAPs) **From** text.design

Needs macOS 10.13 or later; Intel or M1 Mac

Easily layer up 2D and 3D content and apply textures, masks, and shadows.

Anyone wanting to design advanced logos or heavily effected text might think they need to do it in Photoshop, Illustrator, or a similarly high-powered package. But with those apps there can be quite a steep learning curve, especially when you venture into three dimensions. Art Text focuses specifically on logo-style typography, essentially taking the kinds of tools available in much more complex programs and simplifying how you use them.

The idea is that you get one canvas per logo, with layer support for adding multiple elements and straightforward yet powerful tools for manipulating those elements. All the tools and a selection of preset templates are included in the main purchase price, with sets of additional pre-built templates available via IAPs.

Working with text, background, and shape layers you can quickly build up a composition, choosing colors, textures, mask effects, shadows, surface materials, and more. 2D content can be converted to 3D with a click then rotated and positioned. Advanced textures like spray, bubbles, or foodstuffs are great fun to play with and simple to apply.

You'll need a basic understanding of the concepts involved to get really creative, but it's not hard to pick them up. Someone with only fairly basic design skills can very easily create cool 3D titles and graphics. Masking and distortion effects, which can require more experience to achieve in Photoshop, are simplified and provide excellent results without being overly technical to use.

With your logo completed you can export it to most major graphics formats, though not to a Photoshop PSD file, with an option to use transparency as well as exporting layers to separate files, which sort of works around the PSD limitation. Although some of the presets look quite cartoonish, it's also capable of producing graphics for more serious uses. Since you can create assets from scratch as well as modifying presets, and import any photo or graphic of your own, the sky's the limit. Far more capable than simple text editors and much easier to use than a full-blown design package, Art Text is a great way to create cool custom graphics.

THE BOTTOM LINE. A fun, powerful way to create text effects and logos. **HOLLIN JONES**

ART TEXT 4.1

- Easy to use
- Great design tools
- Get results quickly
- Can't export to PSD

EXCELLENT

Each layer has easy-to-use control sections, making it simple to bend and shape headlines and apply textures.

Image rights: BeLight Software.

Carrot Weather

Mac|Life EDITOR'S CHOICE ★★★★★

Outlook: sunny – and snarky

Free (Premium from $0.99/month) **From** meetcarrot.com

Made for iPhone, iPad, iPod touch **Needs** iOS 13.0 or later

Carrot's clever layout customization makes it hugely versatile.

Carrot Weather delivers weather forecasts alongside biting comments, the latter provided by an eccentric anti-human AI moonlighting as a meteorologist. This mix of information and personality was always fun, but became essential as of version 5 due to a superb custom layout feature.

Recent updates further improved the customization system by adding inline radar and active alerts, and previews that instantly show how changes affect your layout. You can define smart layouts, too, for nighttime and during precipitation. Two new built-in layouts, Hypnos and Neptune, are geared to those conditions and can be tweaked to your liking.

Version 5.3 adds another new feature – forecast sharing. This has a variety of screenshot styles to choose from, and you can redact your location or opt to share only a forecast synopsis.

Alternatively, you can play weather forecaster by recording a 30-second video clip. The app provides a script dripping with Carrot Weather's trademark snark, and swish graphics swoop in and out with all the salient details. It's fun and further cements the app as something unique, although it does only shoot you and what's around you. We'd love to see a Clips-like digital background – be that a lovely beach or a post-apocalyptic landscape in which Carrot has eradicated humanity with an army of robot meteorologists.

THE BOTTOM LINE. Our favorite weather app is now even more fun and versatile. **CRAIG GRANNELL**

AWESOME ■■■■■

FitnessView

An app that's fit for the best

Free (Premium from $1.49/month) **From** fitnessview.app

Made for iPhone, iPod touch **Needs** iOS 14.2 or later

You can swipe left or right at the top, but sadly that's not obvious.

Your Apple Watch collects masses of fitness data, and understanding this information is vital to improving your health. FitnessView is a great app to do just this.

The app contains a wealth of data but keeps it accessible by dividing it into four tabs. The home tab shows your activity rings, goals for each metric, and recent workouts. More detailed stats live on the stats tab (unsurprisingly!), while you can drill into historic workouts on the third tab. Settings live in the final tab. The app is not quite as detail-saturated as HeartWatch, but it's more user-friendly.

FitnessView's strength lies in its color coding. That might sound minor, but it helps you easily discern between your various targets at a glance. There's a lot of information to take in, but the design makes it easily digestible. We also like its use of logs, which show how your goals progressed throughout the day.

The premium version contains a ton of useful Home screen widgets and complications, unlimited goals (up from three in the free version), more stats and workout data, and the ability to manually log data like water intake. The widgets in particular are excellent, with a huge range of customizable features and looks.

Some things could be clearer. For example, it's not obvious you can swipe left and right on the home tab's rings to cycle through past days. But that's a small criticism of an otherwise impressive fitness app.

THE BOTTOM LINE. Data that's both beautiful and accessible. **ALEX BLAKE**

EXCELLENT ■■■■■

Image rights from top: Grailr, Funn Media

GROUP TEST

REVIEWED BY NICK PEERS

ON TEST...

- CyberGhost VPN
- ExpressVPN
- NordVPN
- Private Internet Access
- TunnelBear
- Windscribe

VPN PROVIDERS

Discover how to remain anonymous and private online

Image rights: TunnelBear LLC, ExpressVPN.

A **VIRTUAL PRIVATE** Network (VPN) exists to make it harder, if not impossible, to identify both you and your location online. When switched on, a VPN encrypts all the data you send to the internet to hide your activity from your internet provider and your location from whichever website or internet service you're using. It also protects you when surfing through Wi-Fi networks, protected or open.

Technically, only the VPN knows what you're doing, so it's important that it promises to keep no personally identifiable logs of your activities, either for its own benefit or if subpoenaed by a government agency.

In this roundup, we've taken six of the leading VPN providers and tested them for all the key things you need from a VPN: privacy, security, performance, and ease of use. The best part is that all six work on both Mac and iPhone to protect you both at home and on the move. Our tests provide a solid indication of the VPNs' performance. Read on to discover which VPN offers the best blend of all features to provide you with a vital layer of additional security and privacy when online.

How we tested

We tested the VPNs' security by conducting a series of leak tests at ipleak.net and tenta.com/test. These determine if your connection or browser is "leaking" personally identifiable information such as your actual IP address and location. All six providers passed with flying colors.

We then tested the performance of each VPN in three locations (locally, on the other side of the Atlantic, and in Australia) using Speedtest.net to see what negative effect the VPN had on transfer speeds.

Image rights: CyberGhost S.R.L, Private Internet Access, Inc, Windscribe Limited, NordVPN.com.

Things to consider...

>>> No-logs policy:
Read the VPN's privacy policy to confirm that it promises not to track individual behavior. Also, does it allow independent security audits to back these claims up?

>>> Multi-year discounts:
When you've found a service you like and trust, sign up for a longer period (1-3 years) to save up to 85%.

>>> Geo-restrictions:
VPNs can trick web services into thinking you're in a different country. This allows you to access geo-restricted content like streaming services.

>>> Performance:
If you enjoy streaming, gaming or P2P, check to see whether your VPN provider offers dedicated servers optimized for these kinds of activities to ensure performance isn't compromised.

1

> CyberGhost VPN

$12.99/month **From** cyberghostvpn.com

1 Although it's based outside the jurisdiction of the "Fourteen Eyes" in Romania, CyberGhost VPN concentrates the bulk of its 7,000 servers in the US and UK to improve performance when connecting locally. 91 countries are covered.

The Mac app is simple to operate – basic controls are a simple on/off button and choice of favorite servers, but you can easily access a full country list. This reveals how many people are using the server, plus it can be filtered to show the best servers for streaming.

Only two protocols are supported on the Mac and iOS: IKEv2 (the default) and WireGuard. Performance-wise, CyberGhost VPN is firmly in the middle of the chasing pack, with performance dropping off markedly the further away you connect.

If you do opt for it, choose a multi-year subscription – not only do you get a good discount, but you'll also gain free access to the provider's more secure NoSpy servers.

- Wide range of servers
- Simple to operate
- Average performance
- No privacy audit completed

GOOD

> ExpressVPN

$12.95/month **From** expressvpn.com

2 ExpressVPN was out in a field of its own when it came to performance, but while it's still lightning fast thanks to its new proprietary Lightway protocol, it's been caught by NordVPN. Nevertheless, it's still blisteringly quick, even when connected to some really far-flung servers.

ExpressVPN's network is not the largest, but its 3,000 servers are spread across 94 countries and it's one of a few that works in China. It's also one of the best for unblocking geo-restrictions to enable you to stream a host of well-known services, from Netflix to BBC iPlayer.

The user interface can be a little confusing as you need to open multiple windows to access certain settings, but the menu bar icon has a handy shortcut menu. The big downer is the price – even its 12-month package is expensive – and the fact it only supports five simultaneous connections. But if performance and security are your thing, ExpressVPN is worth it.

- Second-fastest on test
- Rock-solid security
- Unblocks streaming platforms
- No major discounts

EXCELLENT

Image rights: CyberGhost S.R.L.

NordVPN

$11.95/month **From** nordvpn.com

3 If you're looking for the best blend of performance, features, security and price, then NordVPN is the service for you. Its new NordLynx protocol enables it to match ExpressVPN's performance both locally and when connecting to the other side of the world. And unlike ExpressVPN, NordVPN has some fantastic offers when you purchase a 2- or 3-year subscription.

In addition, NordVPN offers a host of useful features, including Double VPN, which adds another encapsulated layer of protection around your connection. And if for some reason the NordLynx protocol doesn't float your boat, NordVPN also supports OpenVPN and IKEv2.

NordVPN's server network is a little limited; although it has over 5,000 in total, they're concentrated in just 56 countries. It's also planning to move all its servers to its own physical infrastructure rather than renting space elsewhere.

- Fastest performance on test
- Strong security features
- Outside 14 Eyes jurisdiction
- Only 56 countries covered

EXCELLENT

Private Internet Access

$9.95/month **From** privateinternetaccess.com

4 If transparency is your thing, then Private Internet Access may be for you. Its main claim to fame is that its entire code base is open-sourced to make it easy to audit, which explains why it only supports the Wireguard and OpenVPN protocols (defaulting to the latter at 128-bit.)

PIA has a reputation for excellent performance, but in our tests it was among the also-rans, lagging some way behind the top performers. It does, however, offer a slick, simple interface accessible from the menu bar that can unfold to reveal all kinds of useful stats and settings.

It also offers a generous 10 simultaneous connections – only Windscribe's unlimited option beats it – and you can road-test PIA on your iPhone for up to seven days for free. Sadly, the Mac version offers no such trial. It does offer deep discounts for even a single year's subscription (just $3.33 a month), though, making it one of the most affordable on test, so you do get value for money.

- Very privacy focused
- Great value for money
- Within 5 Eyes jurisdiction
- Not the quickest

GOOD

Image rights: ExpressVPN, NordVPN.com, Private Internet Access, Inc.

5

TunnelBear VPN

$9.99/month **From** tunnelbear.com

If you're looking for a simple, no-fuss VPN then TunnelBear should appeal. Its cutesy bear highlights its beginner-friendly appeal, but don't worry – it's still both private and secure, backed up by a thorough privacy policy and several detailed independent security audits.

In terms of features, it's a little light compared to others, and only supports the OpenVPN protocol, which is reflected in its performance, which was at the bottom end of those tested. It operates a relatively small number of servers – just 2,600 spread across 41 territories.

That said, TunnelBear does have one clever feature not found elsewhere – GhostBear is an option to try and hide the fact you're using a VPN but is only recommended if your ISP blocks your VPN connection because it'll slow things down even further.

TunnelBear's free 500MB monthly allowance is just enough to check it works, but there are some good multi-year deals to be had.

- ✚ User-friendly
- ✚ Free 500MB package
- ➖ Only supports OpenVPN
- ➖ So-so performance

GOOD

6

WindScribe

$9/month **From** windscribe.com

If you want a free VPN for semi-regular use, it's hard to look beyond Windscribe and its generous 10GB monthly allowance. You're limited to a small selection of its total number of servers in 10 countries, but it's great for occasional use.

The Pro version opens this up to 60 countries and 110 distinct cities, and there's no restrictions on how many devices you connect with too. You also have a choice of protocols: IKEv2 (the default), plus OpenVPN, and WireGuard. Performance-wise it doesn't pull up any trees, comparable with TunnelBear and PIA.

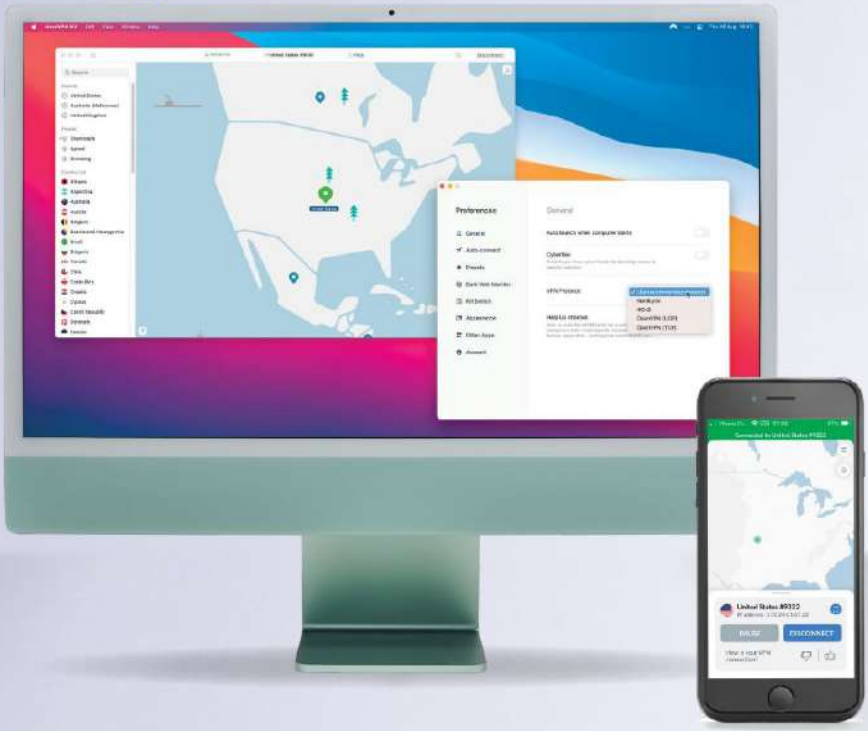
The user interface is a little fussy but is self-contained within a single window. Windscribe proved less reliable connecting to overseas streaming services, with many spotting and blocking the VPN. On the upside, despite being within the "5 Eyes" jurisdiction, Windscribe's privacy policy makes it clear it keeps no personally identifiable information in its logs.

- ✚ Generous free tier
- ✚ WireGuard support
- ✚ Dual VPN modes
- ➖ So-so performance

GOOD

Image rights: TunnelBear LLC, Windscribe Limited.

THE WINNER



NORDVPN

The best all-rounder excels in each key area – a safe choice

EACH OF THE VPN providers on test here has its strengths and weaknesses, but NordVPN manages to produce the best overall blend – it's fast, secure and offers some deep discounts on multi-year subscriptions. ExpressVPN runs it close and edges it on the security front, but it can't compete on price.

The other four contenders can't match NordVPN's performance levels, but each has its own strengths: Windscribe is a practical option as a freebie thanks to its generous 10GB monthly allowance, while TunnelBear's simplicity will appeal to those who don't like fiddling with settings. We like Private Internet Access's commitment to transparency and its preference for open-source code and protocols, while CyberGhost VPN offers a wide range of countries and servers, and is incredibly cheap when you sign up for two years.

Ultimately there's not a dud among any of these, but if you're looking for a VPN that won't compromise on performance while remaining both secure and affordable, it's hard to beat our winner.

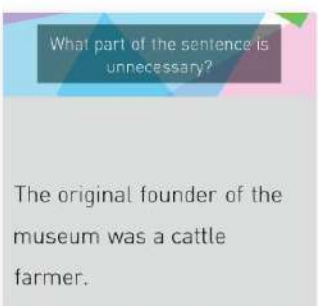
Image rights: NordVPN.com

6 apps to... improve yourself

Achieve your goals and create a new you

Self-help is all the rage these days, but meaningfully improving your abilities is never as easy as the gurus would have you believe. But don't despair — just add a few of these apps to your digital collection and you will arm yourself with the right tools for the job. You will feel new and improved in no time.

Sometimes, all it takes is a few minutes of meditation to get you ready for the challenges ahead. Other times you will need something that can guide you through the process of self-improvement. Whatever the case, this issue's round-up has all you need on your path to a better you. **ALEX BLAKE**



ELEVATE - BRAIN TRAINING
Free (IAPs) **From** elevateapp.com
Made for iPhone, iPad, Apple Watch, iPod touch, Mac

Elevate seeks to boost your brainpower. From focus and memory to expanding your vocabulary and math skills, Elevate's quick-fire games keep you learning every day. The more you use Elevate, the more it learns from you, so it can tailor your training. And when you finish, you can analyze your performance and see how to improve.

HEADSPACE: MEDITATION & SLEEP
Free (IAPs) **From** headspace.com **Made for** iPhone, iPad, Apple Watch, Mac, iPod touch

Meditation is thought to reduce stress and improve your well-being, and Headspace is perfect for this. Its daily meditations cover a range of topics, so you can choose whatever suits you. And it's not just for daytime use – there are also recordings and meditations to help you drift off to a more peaceful sleep.

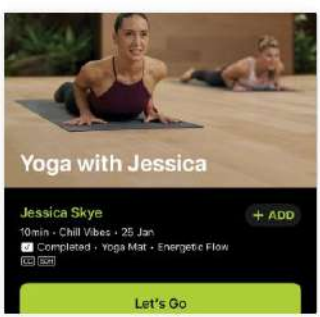
STREAKS
$4.99 **From** streaks.app
Made for iPhone, iPad, Apple Watch, iPod touch

Improving yourself is a long-term project. Whether you want to give up smoking, eat healthier meals, or read more books, Streaks is on hand to help. Track tasks, get reminders to complete them, view your progress over time, and schedule timed to-dos – it's all possible in Streaks. And it syncs to iCloud to keep you on track wherever you are.

Image rights from left: Elevate Inc, Headspace Inc, Crunchy Bagel Pty Ltd.

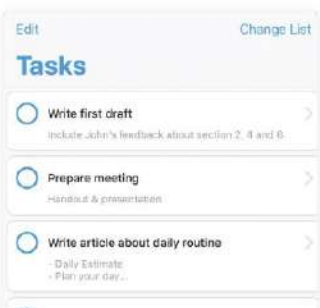
LIFESUM: DIET & MACRO TRACKER
Free (IAPs) **From** lifesum.com **Made for** iPhone, iPad, Apple Watch, iPod touch

If you feel like you need some support to eat well, try Lifesum. From setting goals to tracking calories, this app is a great way to better eating with its personalized diet plans and recipe ideas. Tracking food is as simple as scanning a barcode, and creating a meal plan and getting tips are just as straightforward.



APPLE FITNESS+
$9.99/month or $79.99/year
From apple.com **Made for** iPhone, iPad, Apple Watch, Apple TV

Staying active is a great way to not only get your body fit but also to improve your mental wellbeing. Apple Fitness+ helps you do this in so many different ways, from HIIT workouts to yoga. Every workout is guided by an expert trainer, with less demanding alternative poses so all abilities can take part. And of course, it integrates well with an Apple Watch.



FOCUS - TIME MANAGEMENT
Free (IAPs) **From** meaningful-things.com **Made for** iPhone, iPad, Apple Watch, iPod touch

Being able to get down to work is a key skill, but it's much easier said than done. With Focus in your arsenal, however, it's far more achievable. This app encourages you to work in blocks of 25 minutes with 5 minutes to rest and recharge at the end. With its handy task manager and great ease of use, perfecting your abilities has never been so attainable.

Image rights from left: Lifesum AB, Apple, Meaningful Things GmbH & Co. KG.

Best of the best

Can't find the hardware or app you're looking for in our reviews section? Then check in here – we've highlighted the best in every major category, as voted for by us

> HARDWARE

CATEGORY	PRODUCT	WEB	PRICE	FEATURES
MESH ROUTER	Zyxel Multy U	zyxel.com	$269.99	AC2100, 3 nodes, tri-band, MU-MIMO
4K USB-C MONITOR	BenQ EW3280U	benq.com	$799.99	32-inch 4K IPS, HDR, USB-C, 65W charging
THUNDERBOLT DOCK	Brydge Stone Pro	brydge.com	$239.99	11 ports, 87W power supply, dual display
KEYBOARD	Logitech MX Keys For Mac	logitech.com	$99.99	Backlighting, number pad, USB-C
PRINTER	Epson WorkForce WF-110W	epson.com	$299.99	Wi-Fi, built-in battery, 5760 x 1440 dpi
EXTERNAL HDD	iStorage diskAshur M2	istorage-uk.com	$169	7-15 digit PIN, IP68 rated, shockproof
NAS DEVICE	WD My Cloud Pro PR2100	wdc.com	$399.99	Up to 20TB, 4GB RAM, 2x Gigabit Ethernet
Qi CHARGER	Belkin BOOSTCHARGE TrueFreedom Pro	belkin.com	$129.99	2x 10W charging, supports 3mm thick case
HEADPHONES	Bose NC700	bose.com	$399.95	10 noise-cancelling steps, 20 hours battery
IN-EAR HEADPHONES	Apple AirPods Pro	apple.com	$249	Noise-cancelling, wireless charging case
SECURITY CAMERA	EufyCam 2C (two-pack kit)	eufylife.com	$239.99	Battery-powered, floodlight, local storage
SMART SPEAKER	HomePod mini	apple.com	$99	360-degree sound, stereo pair, AirPlay 2
USB MICROPHONE	Movo UM700	movophoto.com	$99.95	4 recording modes, 20Hz-20kHz frequency response, mode-control dial

Image rights from left to right: The Grizzly Labs, NordVPN.com, Silvio Rizzi.

> iOS/iPadOS APPS

CATEGORY	PRODUCT	WEB	PRICE	NEEDS
TO DO (PRODUCTIVITY)	Things 3	culturedcode.com	$9.99	iOS 10 or later
WRITING	Scrivener	literatureandlatte.com	$19.99	iOS 9 or later
EMAIL	Spark	sparkmailapp.com	Free	iOS 10 or later
PHOTO EDITOR	Pixelmator for iPad	pixelmator.com	$4.99	iPadOS 11 or later
VIDEO EDITOR	LumaFusion 3.0	luma-touch.com	$29.99 (IAPs)	iOS 14.4.1
CAMERA	FiLMiC Firstlight	filmicpro.com	$7.99	iOS 13 or later
RSS READER	Reeder 5	reeder.app	$4.99	iOS 14 or later
IDEAS ORGANIZER	OmniOutliner3	omnigroup.com	Free (IAPs)	iOS 11.2 or later
NOTE-TAKING	Notability 10	gingerlabs.com	$8.99	iOS 12 or later
MIND-MAPPING	MindNode 7	mindnode.com	$14.99	iOS/iPadOS 13.4 or later
DOCUMENT SCANNER	Genius Scan 6.0	thegrizzlylabs.com	Free (IAPs)	iOS 13 or later
CALENDAR	Fantastical 3	flexibits.com	$4.99/month	iOS 13 or later
WEATHER	Carrot Weather 5	meetcarrot.com	$0.99/month	iOS 13 or later

> macOS APPS

CATEGORY	PRODUCT	WEB	PRICE	NEEDS
TO DO (PRODUCTIVITY)	Todoist	todoist.com	$35.99/year	OS X 10.11 or later
WRITING	Ulysses 21	ulysses.app	$49.99/year	macOS 10.14.4 or later
EMAIL	Canary Mail 2	canarymail.io	$19.99	OS X 10.10 or later
PHOTO EDITOR	Affinity Photo	affinity.serif.com	$49.99	OS X 10.7 or later
VIDEO EDITOR	Final Cut Pro	apple.com	$299.99	macOS 10.13 or later
SCREEN CAPTURE	ScreenFlow 9	telestream.net	$129.00	macOS 10.12 or later
MUSIC CREATION	Logic Pro X	apple.com	$199.99	macOS 10.12 or later
FILE ORGANIZER	ForkLift 3	binarynights.com	$29.95	OS X 10.11 or later
DESKTOP PUBLISHING	Adobe InDesign	adobe.com	$20.99/month	macOS 10.13 or later
BACKUP	Carbon Copy Cloner	bombich.com	$39.99	macOS 10.15 or later
VIRTUALIZATION	Parallels Desktop 16	parellels.com	$79.99	macOS 10.13 or later
TIME-TRACKING	Tyme 3	tyme-app.com	$3.99/month	macOS 10.13.2 or later
NEW! VIRTUAL PRIVATE NETWORK	NordVPN	nordvpn.com	$11.95/month	macOS 10.12 or later

Beginner's Guides

Introducing iMovie

Image rights: Apple.

How to edit movies in iMovie

Apple's free video editor makes it easy to create your own home movies and trailers to promote them

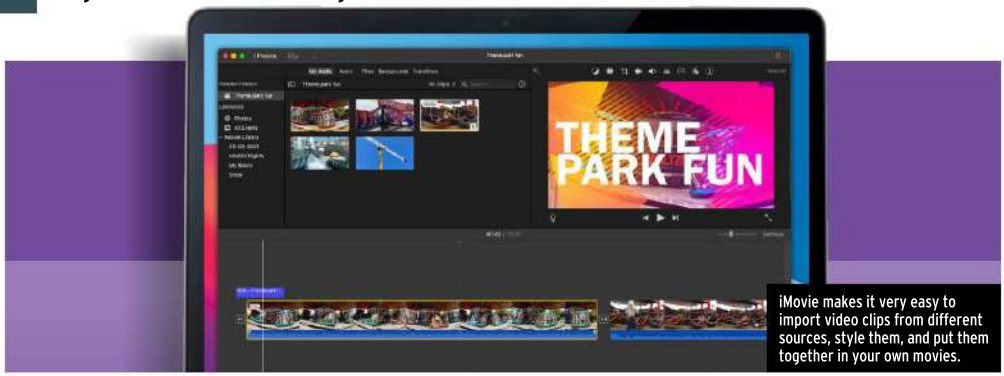
WRITTEN BY **KENNY HEMPHILL**

DIFFICULT THOUGH IT is to believe, iMovie launched 22 years ago, in the fall of 1999. Like much of the software Apple made, and still makes, its goal was to sell hardware. In iMovie's case, the iMac DV. Crucially, the iMac DV shipped with FireWire ports, enabling you to connect a digital video camera. And to make the most of that, Apple created iMovie so you could edit your home movies.

Spin forward a couple of decades and most of the video edited in iMovie is created on Apple's iPhone and iPad. But you can still use it to edit digital video from just about any source and add footage to iMovie from an external drive, USB stick, or smart media card.

Like the other applications we've covered in this series of Beginner's Guides, iMovie is heavily template-based, especially when it comes to making trailers. In fact, trailers are a great way to get started with iMovie, and we'll show you how to make one. There's also plenty of room for creativity, whether it's in how you cut scenes and put them together, the music you add, or the effects you apply. And the best thing about it is once you've got the hang of the basics, it's really easy to do. Before you know it, you'll be uploading your creations to YouTube to share with the world.

Image rights: Apple.



iMovie makes it very easy to import video clips from different sources, style them, and put them together in your own movies.

Create a home movie

Let's get started with just dragging and dropping the elements into place

WHETHER YOU'RE CREATING a whole movie or just a trailer, it's vital that you plan it in advance.

Decide what shots you need before you start shooting. Are they inside or outside? Do they need daylight? What about audio? You don't need a detailed script, but a list of shots will help a great deal and ease a lot of frustration during editing. Think about the story you want to tell and how you can tell it using a mix of close-ups, side shots, and even action sequences. When you create a trailer in iMovie, you'll see there is already a list of shots prepared, all you have to do is drop the relevant clips onto their placeholder.

When it comes to titles and transitions, choose those that fit the subject of your movie. In our example here, we're making a home movie of a visit to a theme park, so garish colors and fun typefaces will work well.

iMovie has a limited number of themes for movies, though they are tucked away in the Window menu and not available when you first create a project. You can use those as a starting point. However you do it, have fun!

EXPLAINED... iMovie's interface

A LIBRARIES
The Libraries list makes it easy to access movie clips stored in your Photos library or used in other iMovie projects.

B TIMELINE
The timeline houses your clips. Drag and drop clips from the library into the place you want them.

C MEDIA LIBRARY
This houses the clips you have added to your project. Click on one to preview it in the viewer.

D EDITS
You can adjust the color or look of a clip, crop it, and even fix camera-shake before adding it to your movie.

Image rights: Apple.

1 Create a new project

Launch iMovie. If you don't see the project library, click Projects in the top-left of the window. Click "+," then Movie to create a new project. You'll see the Media library, viewer, and timeline ready for you to add clips.

2 Import from Photos

Click Photos in the Media library, then click the menu next to Search and choose Videos. Click the video clip you want, then click Play in the viewer to preview it. Drag the clip to the timeline to add it to your movie.

3 Alternative imports

Make sure your Mac is connected to the drive hosting the clip. Click the down arrow next to Projects. Navigate to the clip you want to add and click it. Cmd-click to select more than one. Click Import Selected.

4 Choose a theme

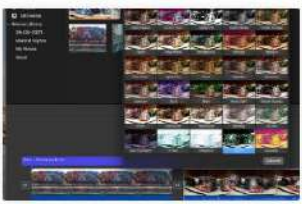
If you want to use a theme to help you get started, choose Settings above the timeline. Click No Theme. Select the theme you want to use and click Change. The theme will be applied to your project, with placeholder text.

5 Add a transition

With at least two clips on the timeline, choose Transitions in the toolbar. To preview a transition, drag the cursor over it. When you've chosen, click the transition and drag it between two clips on the timeline.

6 Fix camera shake

If some of your footage is a little unsteady, click a clip in the timeline and choose the shaky camera icon just above the viewer. Check the box marked Stabilization and use the slider to set the degree to which it is adjusted.



7 Adjust the look

Select the clip in the library or on the timeline. Use the magic wand for a one-shot video and audio fix. Or use the Color Balance, Color Correction, and Clip Filter buttons above the viewer for manual adjustments using sliders.

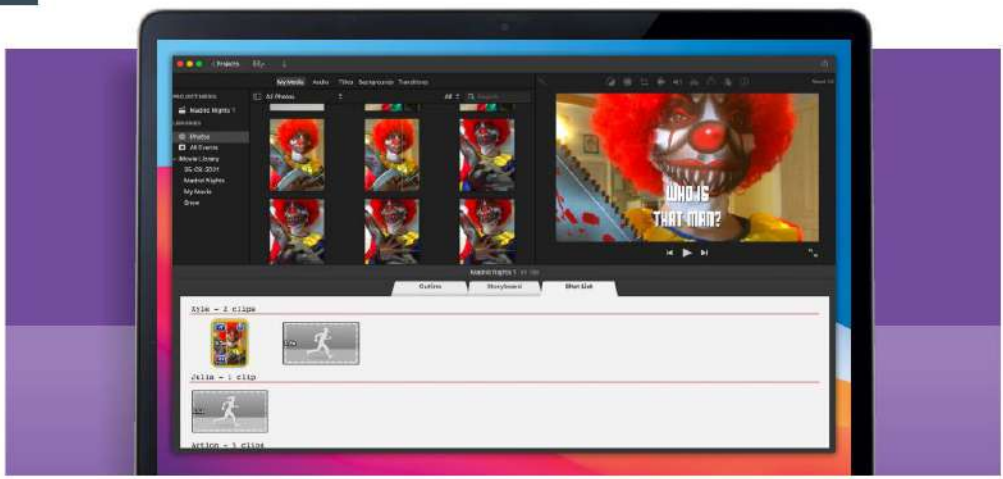
8 Trim or split a clip

Choose the clip in the timeline. Grab the left or right edge by clicking it and then drag it inwards to remove footage at the start or end. To split a clip, drag the playhead to where you want to split it and press Cmd+B.

9 Add a title

Click Titles above the Library. Drag a title either between clips or over a clip. Click the purple marker in the timeline, then double-click the placeholder text in the viewer. Type your text and style it using the options.

Image rights: Apple.



Go deeper with iMovie

Once you've grasped the basics, there's a whole lot more you can do

ADDING CLIPS TO the timeline, trimming them, and adding titles and transitions are the nuts and bolts of making movies in iMovie. Once you've got the hang of those, you'll be able to make great-looking videos. But there's a lot more to iMovie than that. We talked in the introduction about trailers, and we'll show you how to make one here. Trailers are a great introduction to storyboarding, since the templates are presented as storyboards with placeholders for you to add your own content.

We'll also show you how to add a narration track for your videos from within iMovie, which makes it easy to sync your voiceover with the video you're talking about. Finally, we'll show you how to detach the audio of a clip from its video so you can cut them at different points. You could have the audio of a clip start during the transition from the previous clip. Or trim the video of a clip but leave the audio intact.

HOW TO Create a trailer

1 Choose a theme

Click the File menu and choose New Trailer. Choose a theme – take note of the number of cast members needed – then click Create. The trailer will be created with the Outline tab open. Type in details for title, cast, and studio.

2 Add storyboard details

Click Storyboard and type in details for titles and captions in the text boxes between the placeholders for clips. The text is previewed in the viewer. When you're done, click on the Shot List tab.

3 Add your shots

Locate the shots you want to use and drag each onto its placeholder in the Shot List, taking note of the type of shot designated for each placeholder. Use the techniques you learned earlier to adjust clips. Click Play when done.

Image rights: Apple.

HOW TO Add a voiceover

1 Choose audio source

Click the microphone under the viewer window, then click the Settings icon to the right of the red Record button. Choose an input source from the menu. Set the volume using the slider. Click Settings again to close.

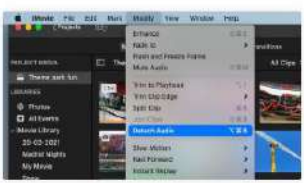
2 Record your narration

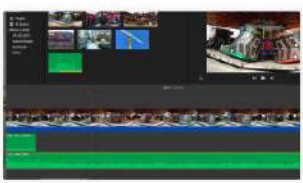
Click Record and speak into the mic. You'll see the level meter move as you talk. If it goes red, start again at a lower volume. Click Record again to stop. You'll see the green audio clip on the timeline.

3 Adjust the audio

Click the green audio track, then choose the icon to the right of the loudspeaker above the viewer. Choose an option from the Equalizer menu to change the audio of your voice. Check the box to reduce background noise.

HOW TO Detach audio from a video clip





1 Detach audio

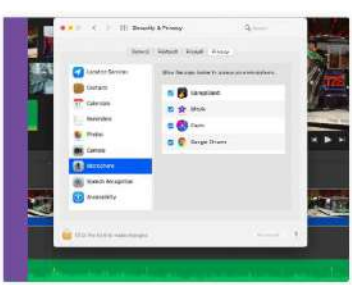
Select the clip in the timeline from which you want to detach audio by clicking it. Click the Modify menu and choose Detach Audio, or press Cmd+Opt+B. You will then see a separate audio track appear.

2 Adjust audio

Select the audio clip – the green rectangle with the waveform in it – and click the loudspeaker icon above the viewer. Choose Auto to automatically set the volume, or use the slider to adjust it manually.

3 Edit the audio clip

By default, the audio starts mid-transition. You can change that by clicking it and dragging it to where you want it on the timeline. And you can trim or split the audio clip in the same way as we did for video in step 8 on p71.



› TIPS AND TRICKS

You can make creating your own videos even easier

Some things in iMovie are less than obvious. To change the name of a project from the default "My Movie," either click Projects above the libraries list then click the project's name, or click All Events then click the project's name. To assemble clips in a project without adding them to the timeline, drag them from the library onto the project's name under Project Media. If you find your built-in mic doesn't record any audio or register on the meter, go to System Prefs › Security & Privacy › Microphone and make sure the iMovie checkbox is selected.

Image rights: Apple.

ASK

TECH SUPPORT & TECHSPLANATIONS

EXPERT ADVICE

Our resident genius solves your Mac and iOS problems

Email Mac|Life at **ask@maclife.com**

Panic: no external boot disk

THE INTRODUCTION OF completely novel hardware inevitably brings the unexpected when some people among the millions of new users do things that the engineers hadn't anticipated. One failing in M1 Macs is the common situation in which an external startup disk is removed when that Mac is shut down.

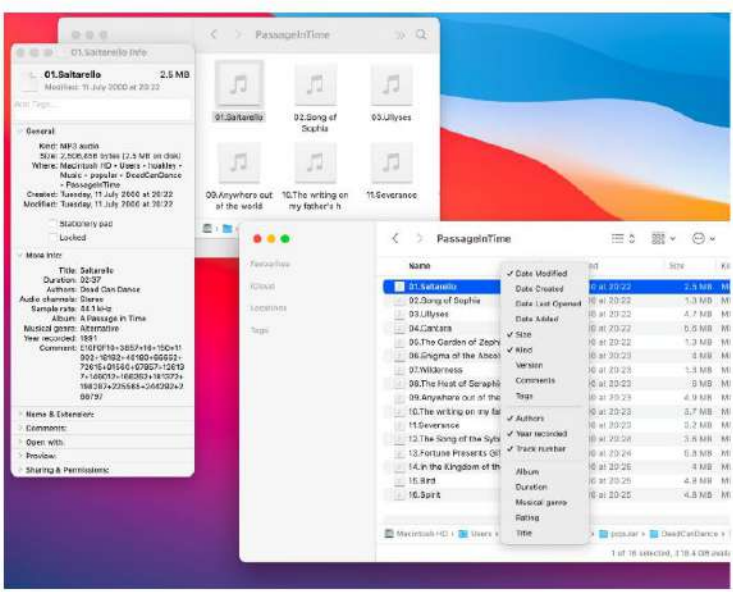
If that disk was selected as the startup disk and is nowhere to be found when the Mac next boots, the result is total catastrophe; it panics, causing another boot, which leads to another panic, and so on until you force it to shut down, then start it up in Recovery.

It shouldn't be hard for the firmware to cope with this by entering Recovery in the first place and letting you choose an available startup disk, but Apple still hasn't fixed this in the eight months since it started delivering these new Macs to users.

More information in list views

In the Finder's List View, I can choose to display additional information such as duration for some folders but not others. How can I extend that to any folder?

The Finder's list views can be customized to show info about files in certain folders. To try this, open one of the specially designated folders in your Home folder, such as Movies, Music or Pictures, and show it as a list. Ctrl-click in the header bar of the window to see the column menu, and there are special properties shown below the divider, such as Dimensions and Duration. These are controlled in the Finder preferences file, and aren't something you can readily customize. The Finder uses the folder name to determine which of several suites of properties to offer in that menu. For example, name a folder in Documents as Movies, and its list view properties will resemble those in your standard Movies folder. You can get this to stick even when that folder's name changes again, and that's one way of effectively adding properties to the lists elsewhere. This is different from the categories listed as Information below the thumbnail shown when a file's selected in column view, which is determined by the file's type and set in the same Finder prefs file.



Some designated folders such as Music can show you additional information about files when seen in the Finder's List view.

Image rights: Apple.

> Backing up before upgrading

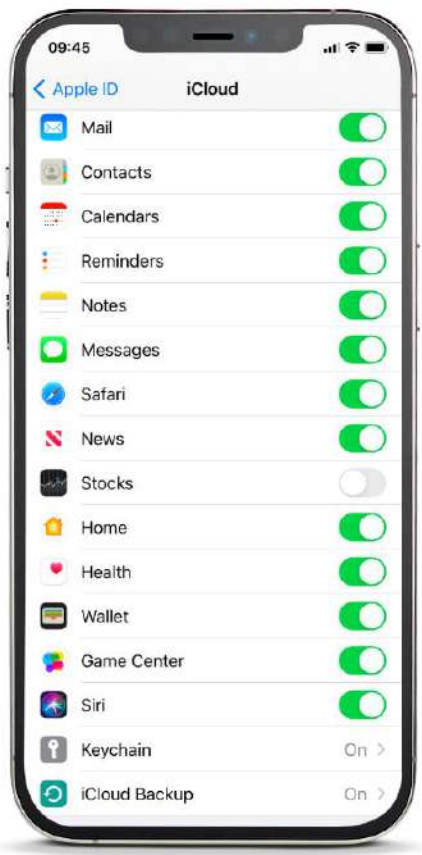
Before upgrading my iPhone to the next major version of iOS, I back it up to iCloud. While preparing for iOS 15, I noticed last year's backup is missing. What's happened to it, and what should I do this year?

Backing up your iPhone and iPad, as well as your Mac, is an important precaution to take before installing any major update, and Apple makes good provision to do that both to iCloud and locally. Those two alternatives differ slightly, and it's wisest to use both if you can.

Backups to iCloud are outside your control, as Apple automatically deletes them when you don't make any further backup for 180 days. This is explained in support documents such as bit.ly/ml186icloudstorage, but it's unclear why this happens automatically, even when you've got plenty of free storage available and might have preferred to keep the backup.

It's worth noting exactly what each backs up before doing so, described in bit.ly/ml186icloudbackup. If you back up to your computer, then Activity, Health and Keychain information will only be included if the backup is encrypted, as explained at bit.ly/ml186icloudencryption.

Unlike some forms of backup in older versions of macOS, iPhone and iPad backups don't include that version of iOS/iPadOS. If something goes wrong with the update, you cannot use a backup to restore the previous version of iOS/iPadOS, but they'll let you reset your iPhone or iPad, then restore all your docs and info from the backup, which should address almost all the problems you could encounter with a big update.



With iCloud Backup enabled, information already shared in iCloud isn't backed up separately. Unused backups are deleted after six months.

Quick-fire questions & answers

HOW TO STOP SILENT MODE TURNING ON BY ACCIDENT?

The simplest solution is to hide that switch by putting your iPhone in a cover which effectively insets it and prevents it from being operated inadvertently. A lightweight, inexpensive plastic sleeve or similar should be ideal, and gives a little protection.

WHY DOES MY HEALTH DATA TAKE UP SO MUCH STORAGE?

If you add extra measurements or information, these soon mount up. If you don't need to access older values, preserve them in an encrypted backup, or share them in iCloud. Then clear your old data through Settings > General > iPhone Storage > Health, and monitor what's in iCloud via Settings > [Your name] > iCloud > Manage Storage > Health.

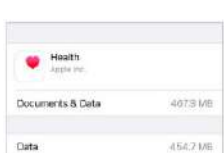
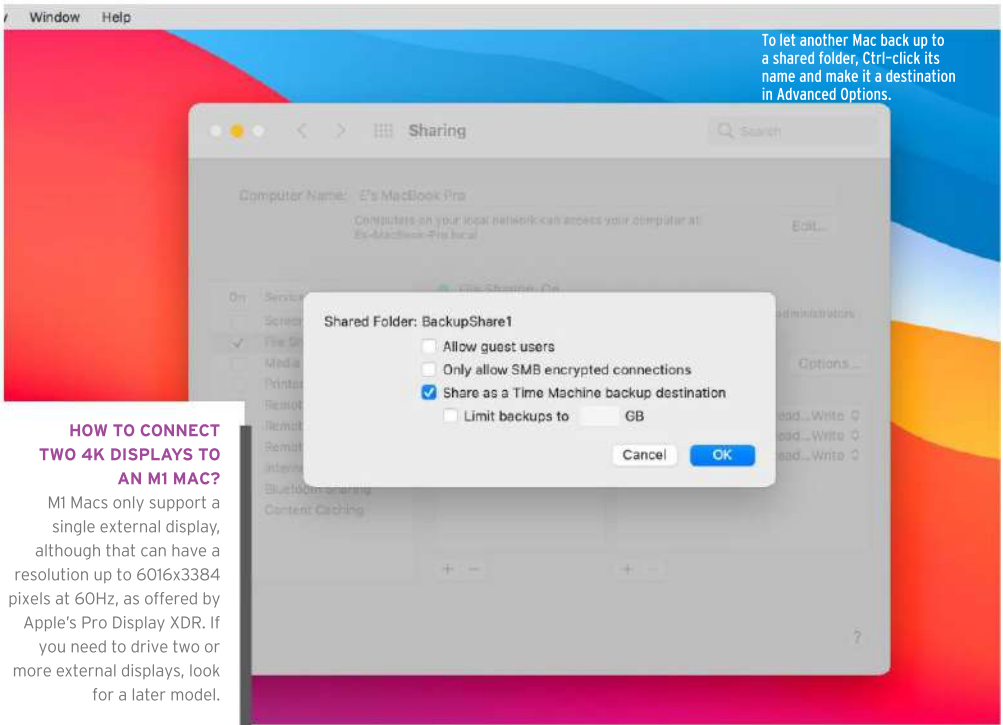


Image rights: Apple.



To let another Mac back up to a shared folder, Ctrl-click its name and make it a destination in Advanced Options.

HOW TO CONNECT TWO 4K DISPLAYS TO AN M1 MAC?

M1 Macs only support a single external display, although that can have a resolution up to 6016x3384 pixels at 60Hz, as offered by Apple's Pro Display XDR. If you need to drive two or more external displays, look for a later model.

ARE THERE ANY USB-C HUBS WITH FIVE OR MORE PORTS?

None yet, and those with four ports normally tie one up connecting the hub to your Mac. There's a practical limit imposed by power requirements: USB-C must be able to deliver a minimum of 60W per port. To support more than four thus requires 300W, and a special power supply.

Replace your Time Capsule

We use a 3TB Time Capsule to back up our two Macs. That's almost full, and we want to upgrade both of them to Big Sur. What's the best replacement storage option?

To get the best from Time Machine in Big Sur it should back up to APFS, which means it couldn't continue using your Time Capsule unless you were to delete most of your existing backups. As that's now over three years old, its hard disk is becoming increasingly likely to fail. If you possibly can, now's the time to put that drive as an archive of those old backups and start backing up to new external storage.

Time Machine in Big Sur will back up happily to networked storage, but is significantly slower when doing so. If one of your Macs is running most of the time and tends to do the heavy lifting, you could connect local storage to that, and make it available over your network using the Sharing pane. If both make heavier demands, then buying the best NAS you can afford could work out, provided that you can accept longer backup times.

The best scenario would be a 2TB external disk attached to each of your Macs so they can backup locally to APFS.

Connect your new storage before you start to install the Big Sur upgrade. When you're ready, make a full copy of each Mac's Data volume from the startup disk to the new disk(s), using a utility like Carbon Copy Cloner (bombich.com) or SuperDuper! (shirtpocket.com) in case the upgrade runs into problems.

Image rights from top: Apple, Ugreen.

If the external display goes to sleep in clamshell mode, press a key or click the mouse to wake it up.

> How to engage clamshell mode

It's easy to use my MacBook Pro with an external display, keyboard and mouse when it's open. How can I do that when it's closed, in "clamshell" mode? Do I need a dock?

You don't need a dock to use your MacBook Pro in clamshell mode, and sometimes using one complicates matters because of compatibility issues – go for docks from vendors specialising in Mac products who ensure they work properly. To save ports and for flexibility, use a wireless keyboard and mouse, such as those made by Apple. The only port you'll need to use is for the external display.

The sequence which should work in clamshell mode involves first connecting the wall charging lead, then ensuring your mouse and keyboard are properly connected. Connect your external display, powering it on so that you see your Mac's Desktop on it. Use the Displays pane to adjust its settings at this stage, and close the MacBook Pro. If the display then goes to sleep, press a key or click the mouse to wake it.

CAN I ADD AN EGPU FOR AN M1 EXTERNAL DISPLAY?

No external GPUs can be used with M1 Macs, because they lack the supporting driver. As these are lower-end models, Apple may offer support in future systems. In any case, their Metal acceleration is already fast without extra help.

HOW TO STOP MY BLUETOOTH KEYBOARD STUTTERING?

There's a long-standing bug in macOS causing this. You may find adjusting the settings in the Keyboard tab of the Keyboard pane can minimize it, and spellchecking will draw your attention to occasional duplicated letters. It's annoying!

> Sleep disconnects an external SSD

When my M1 Mac mini goes to sleep, sometimes it disconnects from an external SSD in its external hub, requiring the hub to be disconnected and reconnected. How can I stop this happening?

One setting to change if you haven't already is to open the Energy Saver pane and check the second item in the list is unchecked, to ensure that your Mac doesn't put hard drives to sleep when possible. In spite of that, some external drives will put themselves to sleep, in which case see if this continues to happen when it's connected direct to your Mac and not through a hub or dock. If it does still disconnect during sleep, then it's most probably a feature of that drive's firmware, and will be difficult if not impossible to change.

If it only disconnects when connected via the hub, the problem rests with the hub rather than the drive. Using a different branded hub from a vendor who specifically builds their products for Mac compatibility should ensure it remains connected. One final step you can take to try and minimize hub problems is to check the top box in Energy Saver, to prevent your Mac from sleeping altogether. With an M1 Mac mini that isn't such a loss, as its power consumption is small and it doesn't generate much heat either.

When external disks unmount during sleep, disable putting "hard disks" to sleep, and if necessary prevent sleep altogether.

Image rights: Apple.

If an app keeps modifying a file whenever it opens it, try locking the file in Finder's Get Info dialog.

IS THERE A SAFE WAY TO DISABLE SIP?

There are few circumstances when you should ever consider turning off System Integrity Protection (SIP). Put a sticky note on your display and leave it there until it's safely turned back on. Don't forget, or your Mac could get something nasty. Disabling SIP on an M1 Mac is even more difficult – it reduces the setting in Startup Security Utility to its lowest level, Permissive Security, until you enable SIP again.

WHY DOES SYSTEM INFORMATION SHOW UNINSTALLED APPS?

The Installations item in the Software section of System Information draws on the list of receipts maintained by macOS in /Library/Receipts/InstallHistory.plist, which records all software installed from sources such as Apple updates, the App Store, and Installer packages. That info isn't available for other apps you install, for example by copying the app to Applications, nor does it record when any installed software is removed.

Why do movies keep getting backed up?

My Mac's backups are growing huge, mainly because whenever I browse movie files using VLC, Time Machine makes another copy of the whole movie. How do I control that?

Like other backup systems, Time Machine only backs up files which have changed. Normally when an app opens a document, especially something potentially large like a movie, it doesn't change the file or its contents, so it shouldn't get backed up. What's happening here is that VLC is probably updating the metadata in the movie files, which results in their modification date being changed. Time Machine then has to make a fresh backup copy of the whole movie.

One workaround is to make the movies read-only, or to lock them, which will prevent any app from writing to them, although some apps might then complain. Another solution is to change the way your backups are created and maintained. When you upgrade to Big Sur or later and Time Machine backs up to an APFS volume, it tries to copy as little as necessary in backups, so will only copy a small section of each movie file. This is both quicker and more economical in space on your backup storage.

Using custom fonts in Big Sur

How can I use my own Gill Sans and other fonts rather than Apple's standard set in Big Sur?

You can install your own fonts in Big Sur, but can't remove those installed on the System volume, which does include Apple's own version of Gill Sans from Monotype. Making such changes to the Big Sur system is technically difficult, and involves irreversible loss of security protection, which would be a major sacrifice.

To install and use a replacement, you can either use the bundled Font Book app, or a professional font manager such as Extensis Suitcase, which is best for those who have many additional fonts, particularly if you use Adobe and such. The current release of Suitcase Fusion is compatible with Big Sur, and runs on M1 Macs.

For more modest needs, Font Book supports both libraries and collections, the latter being preferred to gather together your most used fonts, so that you can choose without having to scroll through thousands. Font Book can also resolve duplicates and validate any font you have installed. Those features, and the ability to disable and remove fonts which aren't locked on the System volume, are all available in the contextual menu when you Ctrl-click any font name listed in Font Book.

Gather groups of fonts into Collections using Font Book to make them more manageable to access in apps.

Image rights: Apple.

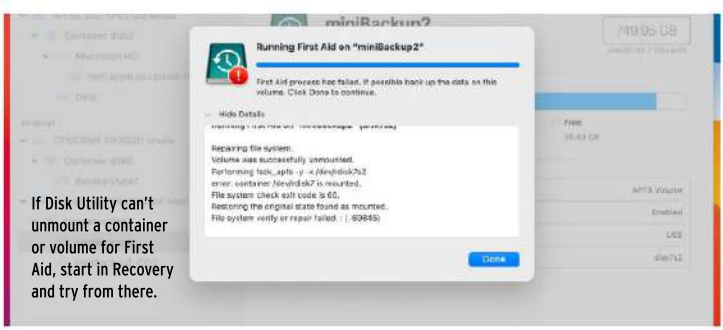
Why can't First Aid check a disk?

After Time Machine made its first backup of my M1 iMac, I ran Disk Utility's First Aid, however it couldn't check the backup disk as it couldn't unmount it. How do I go about checking the backup is good?

The simplest way to check special volumes such as Time Machine backups is to start up in Recovery, select Options, and use Disk Utility from its main window. That ensures that other processes, Time Machine or Spotlight indexing, won't access the volume, enabling Disk Utility to unmount it cleanly. Even then, this doesn't always work first time: you may need to try two or three times before it's eventually successful. You may not even need to run First Aid, though.

Older versions of Time Machine backing up to HFS+ volumes created large numbers of hard links, which is how they created the illusion that each backup was a complete disk. When Big Sur backs up to APFS storage it works quite differently: It doesn't use hard links at all, but assembles snapshots containing the files it backs up. These don't suffer the same problems with damage to the file system, and shouldn't require the same routine maintenance and checking in the way that HFS+ backups do.

So you should now be able to leave Time Machine to get on with managing its backups without running First Aid on a regular basis. All you need to do is every few weeks check that you can restore some files and perhaps a folder from one of your recent backups, just to demonstrate that it works fine.



If Disk Utility can't unmount a container or volume for First Aid, start in Recovery and try from there.

HOW TO DOWNGRADE MY M1 MAC FROM MACOS 12 BETA?

Downgrade macOS with its firmware and recovery system at the same time. M1 Macs are the only models able to do that, by putting it into DFU mode, connecting it to another Mac on at least macOS 10.5.7, and restoring its internal SSD using Apple Configurator 2 (bit.ly/m1186config2).

HOW ARE THERE TWO FILES NAMED NEW IN ONE FOLDER?

This happens when you disable display of extensions in the Finder's preferences. The files New.pdf, New, and New.text have distinct names, so co-exist in the same folder; hide extensions, and each shows the same name with different icons.

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Image rights: Apple.

CREATE

HOW TO DO ANYTHING ON YOUR MAC, iPHONE & iPAD

Make a copy of your Mac

Create a one-off copy or scheduled backup using Carbon Copy Cloner

REQUIRES
macOS 10.15 or later, external storage with sufficient free space, Carbon Copy Cloner 6

YOU WILL LEARN
To copy files so you can restore them

IT WILL TAKE
10 minutes

WHETHER OR NOT Time Machine makes regular backups of your Mac, making a complete copy (a clone or mirror) of its contents is a good idea before you undertake to install macOS updates or upgrades. Carbon Copy Cloner 6 ($39.99, bombich.com) can make a one-off clone or regular backups in addition to, or instead of, Time Machine, and previous versions work for Mojave and earlier.

Catalina and Big Sur change the way that you restore from a clone. Rather than cloning back from the copy to your internal storage, it's better to install macOS then migrate from the copy, and that's the only way for M1 Macs. That means you don't need to clone the System volume, which saves space, although CCC can still do that if you wish.

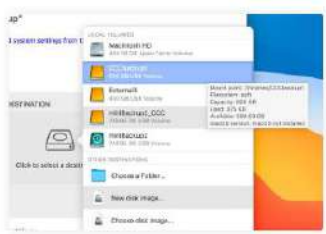
CCC has dozens of options. Here we show how to get the best from them, like excluding items best copied separately, and making snapshots for quick file recovery. Whatever you choose, check your clone works by restoring test items.

HOWARD OAKLEY

HOW TO Clone your Mac the right way

1 Set source volume

In Carbon Copy Cloner, select Tasks in the sidebar and give the new, empty backup task a name. Click on the Source icon and select your Mac's startup disk, by default named Macintosh HD, to make it the source for your clone.



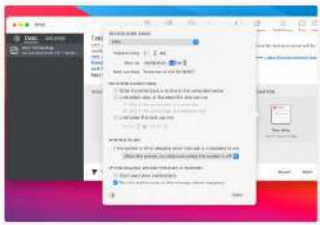
2 Set the destination

Note the used space on your source, and check the destination volume has sufficient free space to store that. Then click on the Destination icon and select the volume with enough free space to contain the clone.

3 Set whether to repeat

Click on Automation to set the scheduling basis if you want this cloning to be repeated automatically. Normally a daily clone is best for backups, or when the disk is remounted for intermittently connected MacBooks.

Image rights: Bombich Software.



4 Set scheduling detail

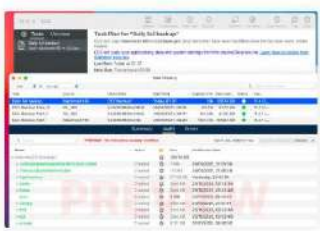
If your Mac is left running overnight, it's a good idea to set the run time for when it's not in use. If it's going to be asleep, you can have the backup task wake the system, or leave it until later. You can also skip weekends.

5 Set excluded items

Click Task Plan at the bottom of the main window to select items you don't want included in the clone. Consider keeping separate copies of huge files like Virtual Machines which change constantly when in use.

6 Set advanced options

CCC offers many options for the more advanced, such as running scripts before and after copying. If you want it to back up while you're using your Mac, you can now change the priority of its copying tasks here.



7 Check with a dry run

Before running the first clone, check whether copying will produce what you expect. Click on the Preview tool and CCC will do a dry run without copying any actual files, and forecast the exact size. Fix any errors now.

8 Set source snapshots

Consider making regular snapshots. Click Volumes in the sidebar and select the startup data volume named Macintosh HD — Data or just Data. Switch on for CCC to make a snapshot with each copy of that volume.

9 Snapshot retention

Most should find CCC's default snapshot retention policy ideal, as older snapshots can take large amounts of disk space. Click the Customize button to set your own policy if you wish, but monitor the space used.

10 Clone that volume

When you've set everything up, Ctrl-click the task in the sidebar and use the Run Now command to make the first clone. CCC then shows its progress of the clone in graphical form, and an accurate estimate of time to finish.

11 Check task actions

When cloning has finished, click on Task History, select the completed task, and click on the Task Trends button to see a summary of actions. If the task is going to recur, click the Start button in the main window.

12 Optional System clone

If you want CCC to clone your System volume as well, before step 7 set the Destination to make a full bootable backup by clicking on its icon and picking Legacy Bootable Backup Assistant command.

Image rights: Bombich Software.

Crop smarter in Pixelmator Pro

How to quickly improve composition and counteract perceptive distortion

REQUIRES
Pixelmator Pro 2.1 Coral ($39.99)

YOU WILL LEARN
How to use the new machine learning (ML) Crop tool

IT WILL TAKE
10 minutes

PIXELMATOR PRO 2.1 Coral uses artificial intelligence in a range of tools to speed up the photo-fixing process. The latest update has now added machine learning to the Crop tool. Cropping is a classic technique that photographers use to reshape a shot's content. You might need to crop an image to lose a stray finger from the edge of the frame. Cropping also makes distant subjects look more prominent in the frame.

As well as being powered by machine learning, Pixelmator's ML Crop tool provides overlays that help you create a more aesthetic composition that obeys the classic Rule of Thirds used by classical painters. You can even adjust perspective while you crop to counteract the converging verticals caused by perspectival distortion. Now, we can put the ML Crop tool through its paces.

GEORGE CAIRNS

A MACHINE LEARNING CROP
The ML Crop tool creates a custom crop to suit the subject. Here it has removed empty sections of sky and grass.

B AUTO STRAIGHTEN
Click here to summon the Auto Straighten tool. If it can't recognise a horizon manually, counteract the tilt using the Straighten slider.

C PERSPECTIVAL DISTORTION
To straighten out a tall building's converging vertical lines, drag this slider to the left.

D FINE-TUNE
The ML Crop may miss important details. Drag with corner handles to tweak the crop.

E OVERLAYS
Here you'll find a range of overlay grids to help you compose an aesthetically pleasing shot.

HOW TO Improve composition using ML cropping

1 Open image

Choose File > Open. Browse to an image that needs cropping. In our example, the horizon is a bit tilted and we're not close enough to the horses and rainbow. We don't really need the partially featured tree on the right.

2 Go straight

To straighten the tilted horizon click on the Crop tool. Click the "..." icon next to the ML Crop button and then click on the Auto Straighten button. The tool should automatically evaluate the shot to counteract the tilt.

3 Auto crop

Click the ML button. The tool will analyze the shot's content and crop to suit the main subject. Here, it's trimmed foreground grass and sky to get closer to the horses. Now go to Overlay and choose Rule of Thirds.

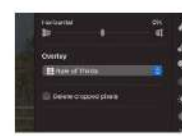
Image rights: Pixelmator Team.

JARGON BUSTER

In classical paintings, the eye is often drawn to the places in the canvas where the Rule of Thirds grid's horizontal and vertical lines intersect.

GENIUS TIP

Keep the "Delete cropped pixels" box unchecked. You can then recompose the shot at any time without permanently losing any image content.



4 Fine-tune composition

Go to Custom Size. Choose a 16:9 shape to make the cropped landscape fit on a widescreen display. Place the Rule of Thirds grid's intersecting horizontal and vertical lines over the black horse's head.

5 Change overlay

When shooting a building from a low angle (or with a wide-angle lens), you may see its vertical walls converge inwardly towards the top of the frame. Set the Crop Overlay to Grid to help get the verticals straight.

6 Crop in perspective

By dragging the Crop tool's Vertical Perspective slider to the left, we can straighten the converging vertical walls and make them run parallel with the frame's edges. Here we also manually tweaked the Straighten slider.

Image rights: Pixelmator Team.

Screen Time on Mac

Use Apple's macOS tool to stay focused and get more done

REQUIRES
macOS 10.15 or later, iOS 12 or later (optional)

YOU WILL LEARN
How to limit apps and content on your Mac

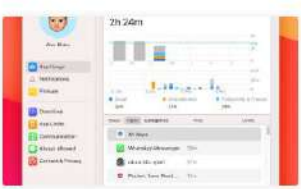
IT WILL TAKE
10 minutes

MANY OF US feel like we waste too much time on our Macs. Whether we're getting distracted from the work we should be doing or simply spending too long sat in front of our screens, getting back on track is important.

With macOS Catalina, Apple introduced Screen Time to the Mac. This handy tool is your one-stop shop for restricting distracting content and tracking your device usage. Enable a few settings and you could find yourself more focused than ever before. Because it is on iPhones and iPads too, it works well across all your devices, letting you track your habits, and learn what should be changed. And if you want to protect the limits you put in place, you can set a Screen Time passcode. Just open Screen Time from System Preferences, click Options, and checkmark Use Screen Time Passcode.

Read on for our helpful tips on how to set up Screen Time by yourself and make the most of its productivity-boosting features. **ALEX BLAKE**

HOW TO Get started with Screen Time



1 Enable Screen Time

Open System Preferences and click Screen Time > Options > Turn On. To see data from your other devices on the same Apple ID, click "Share across devices". On iOS, activate in Settings.

2 App Usage

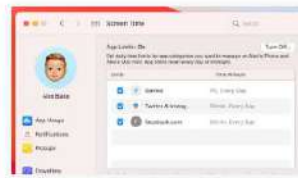
At the top of the sidebar, the App Usage section shows how much time you have spent in each app (or category of app) across the day. You can filter this by device if you have enabled Screen Time on your devices.

3 Notifications...

Below this are the Notifications and Pickups sections. These detail the apps most responsible for disturbing you with notifications, and what apps you first use after opening your Mac or unlocking your other devices.

Image rights: Apple.

HOW TO Use Downtime to stay focused



1 Get some time off

Downtime only lets you run permitted apps. In its Screen Time section are: Downtime and Scheduled. Clicking "Turn On" next to the former enables Downtime instantly. Scheduled sets when Downtime is active.

2 Set Downtime rules

Downtime uses the rules you set in App Limits. Here, click "+" and choose an entire category of apps, or click the arrow to select individual apps. Next to Time, choose how long you can use the app.

3 Limit communications

Downtime can also block excessive phone calls and messages. Click Communication, then decide which people can contact you and when. You can block all unknown contacts.

HOW TO Block unwanted content

1 Stores and Apps

The Content & Privacy section can block unwanted content. Start with the Stores and Apps tabs, which control the apps and app types that are permitted, as well as if passwords are required on the App Store.

2 Content blocking

The other two tabs in Content & Privacy are Content and Other. Content can restrict adult websites and explicit language in Siri, among other things, while Other controls actions like password and account changes.

3 Make some exceptions

If an app is essential to your work, you can let it through Screen Time's filters. Click Always Allowed in the sidebar and select any apps you need. You can also specify allowable communication.

> SCREEN TIME AND FAMILY SHARING

Set limits on child accounts

Family Sharing ties in well with Screen Time. You can set individual Screen Time rules for each child by clicking System Preferences > Family Sharing > Screen Time, clicking your child's name, then clicking Open Screen Time. Now choose their name in the list to get started. In addition, child accounts can request exceptions to your Screen Time rules, such as a little extra time in an app. When they send a request, you'll get a notification on your Mac, and you can view them all at once in the Requests section of the Screen Time sidebar.

Image rights: Apple.

Put your music online

Share your musical masterpieces with the whole world – and sell them too!

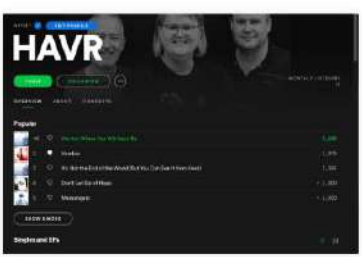
REQUIRES
Finished songs and artwork

YOU WILL LEARN
How to get your music on all the key services

IT WILL TAKE
15 minutes

YOU'VE MADE YOUR music and you've learned how to perform it live. Next step: sharing it with the wider world, and hopefully making a bit of money too. It's really easy to put your music online, and that includes on Apple Music and Spotify.

In this tutorial we'll look at three services: Bandcamp, SoundCloud, and DistroKid. The first two are free with some chargeable, optional add-ons, while DistroKid charges a small fee for its services — which is worth it, because when you upload your music on DistroKid you can sell it in Apple Music, Amazon Music, Spotify, YouTube, and others.



You can't upload directly to services such as Spotify, but you can do it through a third party like DistroKid.

Bandcamp is a sales platform too, but it won't distribute your music anywhere else: the idea is that you direct people to your Bandcamp page where they can stream or buy your tunes. In a nice touch, you can also set a "pay what you want" price, and it's easy to make freebie or discount codes for your email list or social media feed.

Whichever service you choose to use, uploading is really easy. All you need are CD-quality (16-bit, 44KHz) or better WAV or AIFF files and a high-res image for your track or album artwork. But don't use compressed formats such as MP3 or AAC; let your chosen service create those smaller files from your high-quality originals.

It's important to note that these services simply host your music: they don't promote it. Remember, that's your job. **CARRIE MARSHALL**

GENIUS TIP

When you're exporting music, make sure the sound levels don't exceed 0dB; if they do, you'll get horrible distortion on your finished tracks.

Image rights from top to bottom: Apple, Spotify.

HOW TO Upload and share your music

1 Build your Bandcamp

Bandcamp (bandcamp.com) makes it easy to stream, share, and sell your music. Once you've signed up for free use "+ add" to add tracks. Decide on whether to sell them, and the price.

2 Add more info

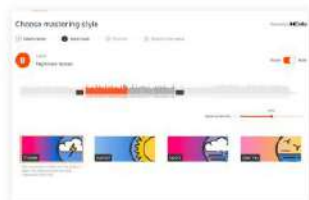
In addition to artwork, you can add tags to help people discover your music. You can also choose to apply Creative Commons copyright options to explicitly give people permission to share, remix, or edit your tracks.

3 Customize your 'camp

Bandcamp's pages are flexible, so you can add your own images, change the color scheme, and so on. When you make changes, they're in a draft: it isn't live until you publish.

4 Start a SoundCloud

SoundCloud (soundcloud.com) offers streaming (downloads aren't free), and is easy to set up. Here we've picked a track and an image; the next step is to enter genre details, plus add tags, and descriptive data.



5 Maybe master it

Mastering can make a song sound better and SoundCloud's option is effective – but it's $4.99 for one song. If you're going to be sharing a lot of music, try learning the mastering plug-ins in your audio app instead.

6 Customize your 'cloud

You can customize your artist page with header and artist images, and listeners can leave likes and comments on your tracks. If you've made an error in your track data, you can edit it here.

7 Get on Apple Music

If you aren't a big-name artist you can't upload to Apple Music or Spotify directly, but you can do it through DistroKid (distrokid.com). It enables you to get your music onto all the key platforms.

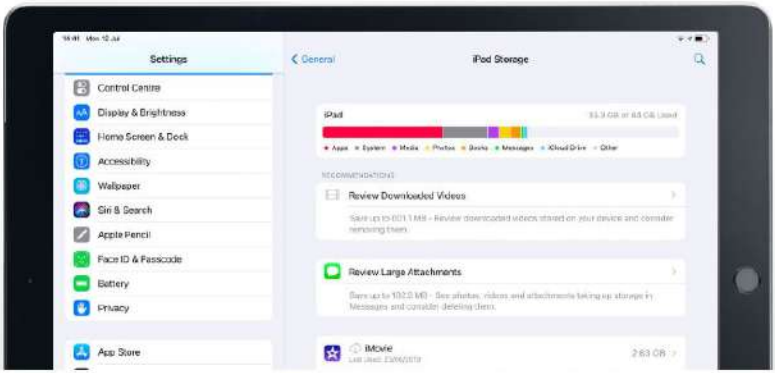
8 Edit the info

Online music stores require certain bits of information before they'll stock your music, such as songwriter details and if it needs an "explicit" rating. You can also set your price for Apple and Amazon sales.

9 Share it everywhere

DistroKid has Hyperfollow, which creates a single page with links to your music on each service. That means you can share a single link online instead of coding one for each service.

Image rights from top-left, top-bottom: Bandcamp, Inc, SoundCloud Global Limited & Co. KG, DistroKid.



Free up storage space

Need more room on your iOS device to update to iOS 15? Follow our tips

REQUIRES
iPhone or iPad

YOU WILL LEARN
How to free up storage space on your iPhone or iPad

IT WILL TAKE
30 minutes

UNLESS YOU HAVE an iPad Pro with a storage capacity that's measured in TB, the chances are that sooner or later you'll run into the problem of not having enough storage space on your iPad or iPhone to do what you want to do.

Often, it's only when you come to update to a new version of the OS that you realize you're running short of space. Thankfully, there is plenty you can do to clear out the clutter and create more free space on your device.

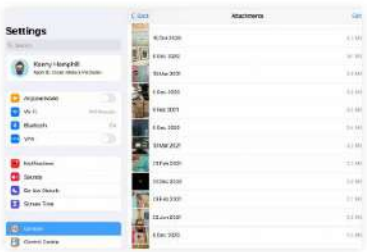
How you use your iPhone or iPad will play a big role in how much storage space you use and how easy it is to free up. For example, if you download movies and TV programs to view offline while you travel, then you'll quickly fill up gigabytes of space that can be easily cleared when you've finished with them.

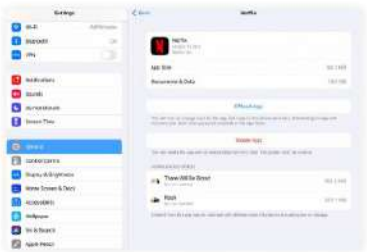
However, it's not always obvious what's taking up space, nor how it can be freed up. That's why we've put together these tips, to help you eke out every MB of space as quickly as possible. **KENNY HEMPHILL**

GENIUS TIP

To reduce the amount of space taken up by future Music downloads, turn Dolby Atmos downloads off in Settings > Music.

HOW TO Create more storage space





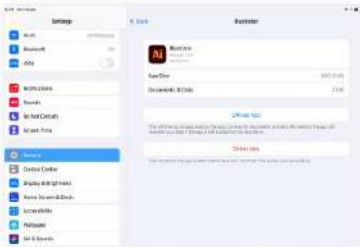
1 Check Recommendations

Open Settings > General. Tap "Storage". You'll see recommendations under the graph of data usage. Review these and tap on any you want to follow. We're going to delete attachments.

2 Clear app data

Some apps enable you to clear data without deleting them. Here we've tapped Netflix in Settings > General > iPad Storage and can remove the downloaded videos by swiping left over them and tapping "Delete".

Image rights: Apple.

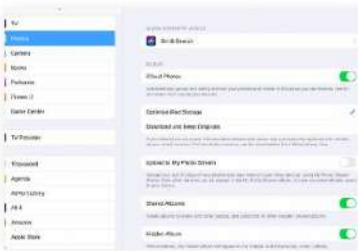


3 Offload apps

Offloading an app removes the app but retains its documents and data, ready for next time. Go to Settings > General > iPad (or iPhone) Storage and tap on an app that uses lots of space. Tap "Offload App".

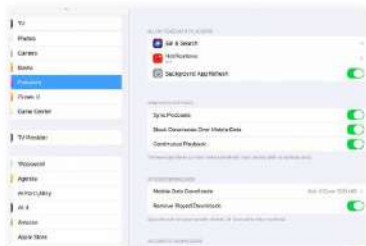
4 Delete apps

Deleting an app removes both the app and its documents and data from your device. If you reinstall the app, you won't be able to recover the deleted data. If you're sure you'll no longer use it, choose "Delete App".



5 Use iCloud Photo

Store photos and videos in iCloud and host only low-res versions — full-size versions are downloaded when you need them. Go to Settings > Photos and toggle "iCloud Photos" and "Optimize Storage" to on.



6 Delete Podcast downloads

If you download podcasts often, it builds up. To automatically delete them after listening to them, go to Settings > Podcasts and switch "Remove Played Downloads" on.

7 Delete Music downloads

On your device, go to Settings > Music and tap "Downloaded Music". To remove all of an artist's music, swipe left over the artist, and tap "Delete". To delete specific songs, tap the artist and choose what to remove.

8 Clear Safari cache

Clearing Safari's cache will free up space but also log you out of websites. Launch Settings and tap Safari. Scroll down to below the Privacy & Security section and tap "clear History and Website Data".

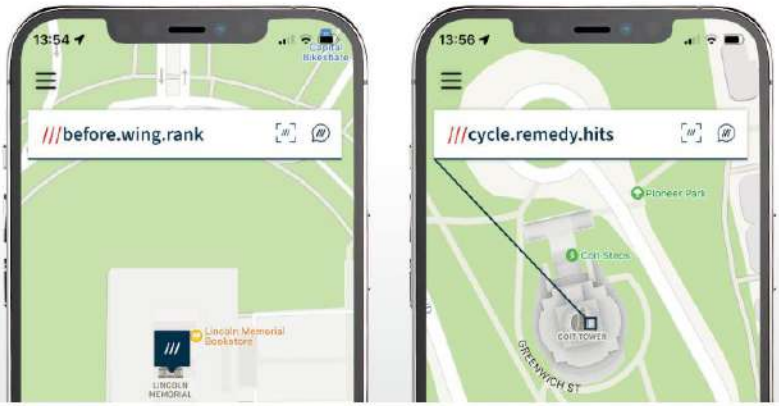
JARGON BUSTER

Cache is data that you've recently used. It's stored locally temporarily so it can be accessed quickly when it's needed.

GENIUS TIP

You can offload unused apps automatically. Go to Settings > App Store and toggle "Offload Unused Apps" to on.

Image rights: Apple.



Get directions anywhere

Find and be found with this reliable mapping utility

REQUIRES
what3words (free), iOS 11 or later, Location Services enabled

YOU WILL LEARN
How to find and share locations with the what3words app

IT WILL TAKE
5 minutes

EVEN IN MODERN apps like Apple Maps, finding precise locations can be tricky. Instead of relying on a shaky data signal or unreliable addresses, use what3words. This app divides the planet into uniquely named 10 foot squares to give you highly accurate locations. These locations never change, providing a reliable positioning capability in almost any situation.

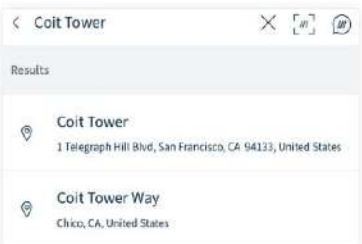
It even works if you're offline since it uses a satellite signal to get your location, so even if you're without an internet or phone connection, you can still get your precise location and direct the right people to it if needed.

Likewise, you can use what3words to point you to a location: find a destination, then tap the Compass button and it will show you the way to go and how far away you are, even if you have no connection. You won't be able to share the location or get directions in an app like Apple Maps if you're offline, but it's still brilliant in a pinch. **ALEX BLAKE**

GENIUS TIP

Lots of online stores accept what3words codes as delivery locations. This is great if your standard delivery address is hard to find.

HOW TO Find your way



1 Find a location

Tap the search box at the top and type a place name or location, then pick a result from the list. The app will show its location as a what3words code. Tap any other square on the grid to get a new place code.

2 Scan or talk

Tap the square icon to the right of the search bar, then grant access to your camera. You can now scan a printed what3words code into the app to find a location. Or tap the speech bubble to speak a location code.

Image rights: what3words Limited.

3 Start navigating

Once you have a what3words location, tap "Navigate", then choose an app like Apple Maps or Citymapper to get directions there. Alternatively, tap "Compass" to get a digital compass on the screen that points the way.

4 Share your location

Sharing your current location is easy. Tap the arrow icon in the bottom right to center on your location, or load a what3words code. Now tap "Share" at the bottom and choose an option from the share sheet.

5 Save to favorites

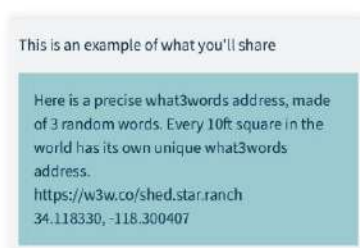
Tap "Save", then add a label. Places are saved to your favorites – you can tap "Change" to add a new list. Tap "Saved" to remove it, or find saved locations in the app menu, tap "...", then tap "Delete from list".

6 View and share favorites

To find your saved locations, tap the menu icon in the top left, then tap "Saved locations". Tap one to show it on the what3words map. Inside a saved list, tap the three dots, then tap "Share list" to send it.

7 Photo mode

Tap the menu icon and tap Photo mode. Snap a picture or choose one from your library at the bottom left, after which a what3words code will be applied. You can customize this tag's appearance, then share the image.


This is an example of what you'll share
Here is a precise what3words address, made of 3 random words. Every 10ft square in the world has its own unique what3words address.
https://w3w.co/shed.star.ranch
34.118330, -118.300407

8 Customize settings

Tap the menu icon, then tap "Settings". Here you can customize the way what3words works. In Share settings, you can add latitude and longitude to shared locations, for instance, or share them in another language.

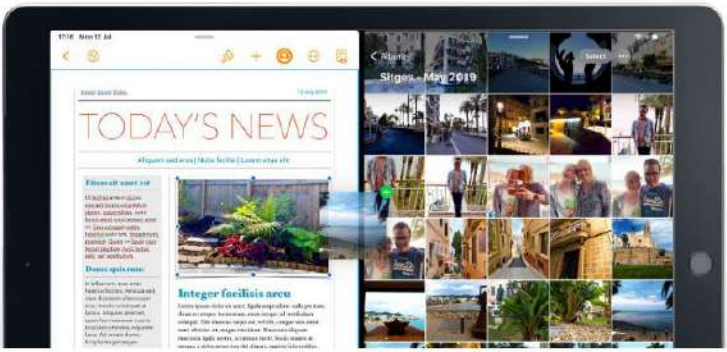
JARGON BUSTER

Satellite mode switches what3words from a map to a satellite photo view. Tap it in the bottom right if the map view isn't clear enough.

GENIUS TIP

While what3words can be useful for pinpointing your location in an emergency, it's recommended that you make use of Emergency SOS first.

Image rights: what3words Limited.



Master drag and drop

You don't have to wait until iPadOS 15 to drag and drop files on your iPad

REQUIRES
iPad, iPadOS 14 or later

YOU WILL LEARN
How to drag and drop files on your iPad

IT WILL TAKE
30 minutes

DRAG AND DROP, one of the features that characterized the Mac when it first arrived all the way back in 1984, comes to the iPhone later this year in iOS 15. Even in early beta versions, it looks like it works very well, and will make a huge difference to getting work done on the iPhone.

The feature will also be included in iPadOS 15, but won't have quite the same impact on the iPad as it will on the iPhone. Why? Because you can already drag and drop between apps in iPadOS, and you can drag and drop files between folders in the Files app.

The key difference between the way drag and drop will work in iOS 15 and iPadOS 15 and the way it currently works in iPadOS is that to use it to drag content from one app to another, at the moment the apps need to be side by side on the screen in Split View or Slide Over mode. In the updated version, there won't be any setup required at all.

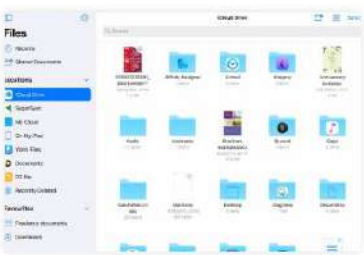
In this tutorial, we will show you how to use drag and drop in iPadOS 14.

KENNY HEMPHILL

GENIUS TIP

If you have two apps open in Split View, you can add a third in Slide Over. Just open the Dock, and drag the app over the divider between the split-screen apps.

HOW TO Drag and drop in iPadOS



1 Open the first app

Launch the app that hosts the content you want to drag onto another app. In this example, we're going to add an image from Files onto an email message. Tap the Files app to open it, and then navigate to the image.

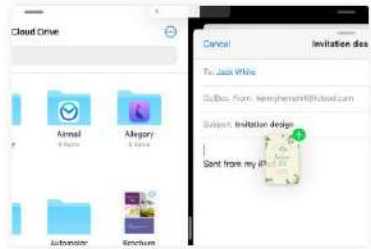
2 Add the second app

Tap and hold on the app you want to drag the file to, then drag it up, and then over to the left or right of the screen. Drop it when the screen divider appears. Tap and drag the divider to where you want it.

Image rights: Apple.

3 Create content

In the app you are going to drag to, create a content holder. In this case, we're creating a new message in Mail, but it could be a message in Messages or a doc in Pages. You can also drag text from Safari to a text app.

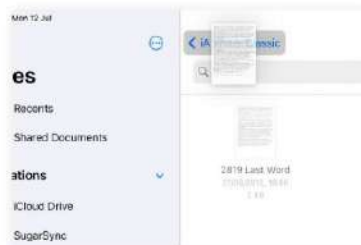


4 Drag the file

Tap and hold the file to drag – in this case, an image in the Files app. Without letting go, drag it across the screen divider and onto the content holder you created in step 3. Drop it, and it will be added to the holder.

5 Drag and drop in Files

Navigate to the file or folder you want to move. Tap and hold on it until it "lifts", then drag it. Hover over a folder with your finger to open it, and drop the file, or keep going until you reach the folder you want to add it to.



6 Drag it elsewhere in Files

Tap and hold, then drag it over the navigation arrow at the top of the screen to the right of the sidebar. When the screen slides back to the previous folder, let go of the file to drop it.

7 Drag text in a document

Open a document and double-tap over the text. Drag the handles so that all the text you want to drag is selected. Tap and hold on the selected text until it "lifts", then drag it to where you want it. Let it go to drop it.

8 Open a link in Split View

In a document with a hyperlink, select it, then tap and hold. Drag the link to the edge of the screen, and let go when you see the screen divider. Safari will open in split-screen mode at the web page the link points to.

JARGON BUSTER

Slide Over is the name Apple gives to the multitasking option where one app floats on top of the other on the left or right of the screen.

GENIUS TIP

If the app you want to drag up from the Dock isn't in the Dock, you can put it there by opening it, then closing it again. It will subsequently appear in the Recents section.

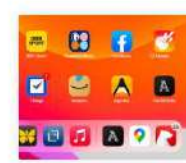
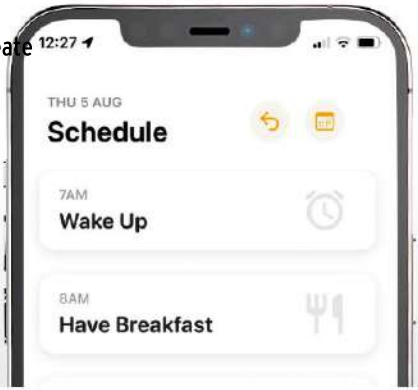


Image rights: Apple.



Plan your day on iOS

Get on top of your tasks with Hour Blocks' daily schedule

REQUIRES
Hour Blocks (free), iOS 14, or later

YOU WILL LEARN
How to plan daily tasks and create a schedule

IT WILL TAKE
10 minutes

GETTING ORGANIZED IS a lot easier said than done. If you've ever tried to plan your days out, but found yourself overwhelmed with everything that seems to be on your plate, you will know how hard it can be.

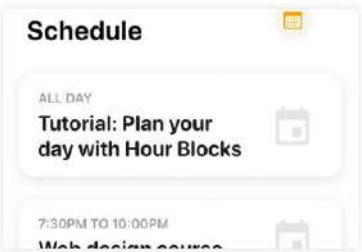
Instead of showing a calendar view packed with events, the Hour Blocks app focuses on one day at a time. Each day is broken down into a timeline with hour-long slots, with one task for each block. This gives you a clear, uncluttered way to view your schedule that lets you focus your energy where it matters. The more you use Hour Blocks, the smarter it gets, learning from your habits, and suggesting appropriate activities at the right time of day. It's simple enough to be unobtrusive, but has enough power to keep you in control.

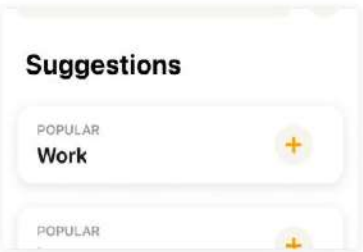
As well as being available on iOS and iPadOS, there is an Hour Blocks Mac app for when you're not using your iPhone or iPad. Each app is free, with all features readily available. **ALEX BLAKE**

GENIUS TIP

Hour Blocks' to-do list works with Siri. Try saying, "Add gardening to my to-do list in Hour Blocks." (The task may not show right away.)

HOW TO Plan with Hour Blocks





1 Grant access

When you first open Hour Blocks, grant it access to your calendar, and it will add events to your timeline automatically. If there are no calendar events for a selected day, the Hour Blocks schedule will be blank.

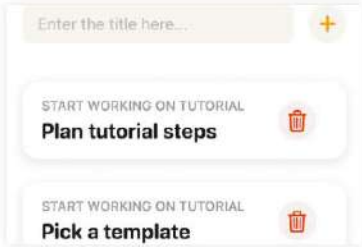
2 Add events

Add events by tapping the "+" next to an hour slot. Pick a suggested activity or insert a title in the text box, and tap "+" to add it. Tap the calendar to plan a different day, or swipe sideways at the top of the schedule.

Image rights: James Saeed.

3 Block options

Tap and hold a block in the schedule to see its options. You can edit its name and icon, reschedule it to a new time in the day, duplicate it, or remove it from your timeline. Tap anywhere outside the menu to close it.



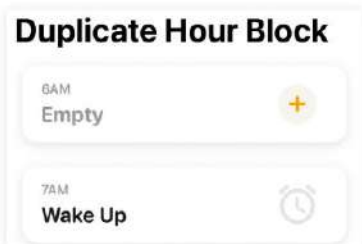
4 Sub blocks

The long-press menu lets you add sub blocks to a task. This is handy if your main task is made up of smaller steps, such as tidying the house or starting a piece of work. Remove sub blocks by tapping the bin icon.

1PM
Overwrite Existing Hour Block
Are you sure you would like to overwrite an existing Hour Block? This will also clear any Sub Blocks within the Hour Block
Cancel
Overwrite
3PM

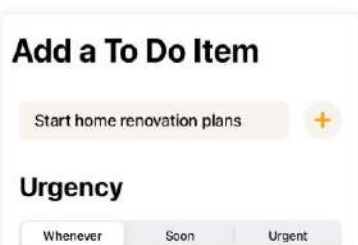
5 Reschedule your work

Tap and hold a task, then tap Reschedule. Tap the icon with an up/down arrow to swap this task with the one you long-pressed, or tap the single up or down arrow to overwrite this with the one you long-pressed.



6 Duplicate a task

Some tasks take longer. For these, tap and hold the task, then tap Duplicate. From the menu, tap the "+" next to every hour block that you want the task to cover. This can quickly populate your day if needed.



7 To Do List

Tap To Do List at the bottom. Tap "+" to add a new to-do task, enter a title, select its urgency, then tap "+". Tap and hold one to add it to your timeline, or complete, edit, or delete it. These tasks are ordered by urgency.

8 Adjust settings

Tap Settings at the bottom to tweak how Hour Blocks works. Here, you can choose what calendars are imported, whether you get sent Hour Blocks reminders, what time your day starts, and even change the app icon.

GENIUS TIP

Hour Blocks' To Do List isn't like a reminders list – there are no due dates or alerts. Use the Reminders app for more important tasks.

GENIUS TIP

Hour Blocks has four widgets you can add to your iOS Home screen: Your upcoming schedule, and your to-do list, each in two different sizes.

Image rights: James Saeed.

Lossless audio on Apple Music

Better late than never – Apple Music finally provides CD-quality audio

HOW IT WORKS

YOU WILL LEARN

How audio compression works, and how to get the best quality from Apple Music

MUSIC WAS COMPRESSED USING DIGITAL FILE FORMATS, BUT STREAMING SERVICES ARE NOW ABLE TO USE LOSSLESS AUDIO FORMATS

KEY FACT

Lossless audio generally means sound quality that is equivalent to music recorded on CD, in the 16-bit/44.1kHz format. However, high-res audio goes beyond CD-quality, with Apple's Hi-Res Lossless Audio stepping right up to 24-bit/192kHz. Unfortunately, AirPods and other Bluetooth headphones can't handle lossless or high-res audio.

IT'S ABOUT TIME. After years of rumors, Apple has finally taken the plunge and added lossless and high-resolution audio to its Apple Music streaming service. It's bizarre, really, that a company that talks so much about innovation has taken so long to catch up with the latest audio technologies. In fact, with the exception of Spotify, all the main music streaming services have been offering lossless or high-res audio for years (which is why many subscribe to Tidal rather than Apple Music).

But what exactly is lossless or high-res audio? That question takes us back to the very first digital audio format — ye olde Compact Disc — way back in the 1980s. The music stored on CDs is "digitized" — converted from analogue sound waves by "sampling" the original sound and then storing it as digital data. Music stored on CD is sampled at a rate of 44,100 times per second — also known as 44.1kHz. Each sample also requires a certain number of "bits" to be stored as a digital file. So, for CD-quality music, the sampling rate is 44.1kHz and the bit-rate is 16-bits — with this format often referred to as 16-bit/44.1kHz.

LOSSY VS LOSSLESS

Recording 44,100 samples a second means you can end up with some really big audio files. Until relatively recently, home broadband services simply weren't fast enough to stream true CD-quality music. To make the file sizes more manageable, the music was "compressed" using digital file formats, such as the old MP3 or Apple's AAC, that discard some of the audio data and sacrifice some of the detail and quality of the original recording to reduce the size of the audio file. This is known as "lossy" compression, as some of the audio data is lost in the process.

But of course, modern broadband services are much faster, so the size of digital music files isn't really a problem anymore. As a result, streaming services are now able to use lossless audio formats that preserve all the original audio data with no loss of detail or sound quality. The lossless WAV and FLAC formats are widely used online, while Apple Music uses the Apple Lossless Audio Codec, (or ALAC). So the term "lossless audio" generally means music that is equivalent to true CD-quality recorded in 16-bit/44.1kHz format.

In addition to CD-quality lossless audio, Apple Music — and streaming rivals such as Qobuz and Tidal — also offer "high-res audio". This extra level of quality is often compared to the "studio master" recordings that are created by artists in a professional recording studio. These high-res recordings can have sampling rates as high as 192kHz, and bit rates of 24-bit or even 32-bit. By default, Apple Music still streams music in the lossy AAC format, but if you look at the Settings panel for the Music app on your Mac or iOS devices, you'll find an option to switch into the new Lossless Audio mode.

The standard Lossless Audio mode streams CD-quality music in 16-bit/44.1kHz format, although some tracks may also offer a slightly higher

The Beats EP have a wired connection, so they work with lossless audio.

Image rights: Apple.

While the AirPods Max support spatial audio, they use Bluetooth streaming technology, which compresses lossless audio.

quality option that uses 24-bit/48kHz. There are currently 20 million lossless tracks on Apple Music, with Apple aiming to get the entire library of 75 million tracks upgraded to lossless by the end of this year. However, the real high-res audio option — which Apple refers to as Hi-Res Lossless — goes right up to 24-bit/192kHz. The bad news for audiophiles is that Hi-Res Lossless requires you to buy some additional hardware, known as a DAC — digital-to-analog converter — because the cheap-and-cheerful sound chips that Apple uses in Macs and mobile devices can't handle that level of audio quality on their own. And, bizarrely for Apple audiophiles, there's one other hardware problem that we have to deal with as well…

BLUETOOTH BLUES

Millions of people now use Apple's AirPods or Bluetooth headphones from other manufacturers for listening to music. The convenience of Bluetooth wireless headphones is great, of course, but it comes at a price. Bluetooth streaming uses its own form of lossy compression, so even if you're streaming lossless or high-res audio from Apple Music, or any other streaming service, your Bluetooth headphones are actually compressing it all over again and serving you lower-quality lossy audio instead.

Apple has shot itself in the foot here, as its own headphones can't play the highest-quality music that is now available on Apple Music. If you really want to hear music with the best possible sound quality, then good old-fashioned wired headphones are still your best bet. The HomePod and HomePod mini can't play lossless or high-res audio at the moment either, although Apple is working on a software update that will hopefully solve this problem. It'll probably take a few months for all the technical details to be ironed out, but the fact that Apple has finally adopted high-res audio — and, crucially, doesn't charge extra for it — means that lossless audio is the new industry standard for streaming services. **CLIFF JOSEPH**

> HIGH-RES RIVALS

Apple really is Johnny-come-lately when it comes to lossless/high-res audio. One of the first streaming services to offer lossless and high-res music was the Paris-based Qobuz in 2007. Qobuz is very much aimed at well-heeled hi-fi buffs, with subscriptions starting at $14.99 compared to $9.99 for Apple Music. However, it boasts an unrivalled library of 70 million high-res tracks – compared to Apple Music's now 20 million in lossless format, and number of high-res tracks.

Another popular high-res service is Tidal, which starts at $9.99 per month but charges a hefty $19.99 for its top-quality HiFi subscription. However, Tidal also has a small selection of songs using Dolby Atmos and Sony's 360 Reality Audio, which are rivals to Apple's spatial audio technology.

Even Amazon beat Apple to it, launching Amazon Music HD in 2019. Amazon offers 75 million lossless tracks with CD-quality, and 7 million high-res tracks, and also cut its prices in response to Apple's announcement of lossless music, down to $14.99 per month (or $12.99 for Amazon Prime subscribers).

KEY FACT

You'll need to update to the latest versions of iOS and macOS to use lossless audio on Apple Music. On a Mac, open Preferences in the Music app, and select the Lossless Audio option listed under Audio quality. For iOS devices, go into Settings, then scroll down to Music to select Lossless Audio.

Image rights: Apple.

RANDOM APPLE MEMORY

Apple IIGS heralds breakthroughs in color and sound

Charlotte Henry reflects on the Apple IIGS computer

THE APPLE IIGS, released in September 1986, was the final model of the Apple II range. It was a ground-breaking machine in several ways. Notably, it was the first Apple computer with a color Graphical User Interface (GUI). There was also the availability of Super-High Resolution graphics mode. This made possible a greater number of color choices than both the high-resolution and double high-resolution modes of previous models.

Its sound also had a massive upgrade, powered by an Ensoniq 5503 Digital Oscillator Chip (DOC). This allowed up to 32 voices – Apple paired them to create 16 richer sounding voices, taking it well beyond the arcade-like sounds expected of computers in the mid-1980s.

So significant were these upgrades that a device was named after them – the GS in the title stands for Graphics and Sound. In this focus on sound and graphics capabilities, one can see much of what we associate with Apple today – a massive appeal to creatives and music fans of all kinds.

The Apple IIGS also came with the Apple Desktop Bus interface which connected the keyboard, mouse, and other input devices. It contained a 16-bit 65C816 microprocessor, 256 KB or 1 MB of memory (which could be expanded up to 8MB), and supported 5.25-inch and 3.5-inch floppy disks. The seven general-purpose expansion slots were compatible with those on earlier models in the range: the original Apple II, II+, and IIe. It started at $999.

The Apple IIGS unveiling also marked 10 years of the company and, to celebrate, the first 10,000 were signed 'Woz' by co-founder Steve Wozniak, who had been so central to their invention.

While there was much to admire about the Apple IIGS, some software publishers found there were technical limitations and declined to create original products for it. By the end of 1992, the Apple IIGS had been discontinued.

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